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UNDERGRADUATE CATALOG

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OF MARYLAND

AT COLLEGE PARK

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UNIVERSITY OF MARYLAND COLLEGE PARK

Policy Statement: The University of Maryland is an equal opportunity institution with respect to both education and employment. The University's policies, programs and activities are in compliance with pertinent federal and state laws and regulations on nondiscrimination regarding race, color, religion, age, national origin, sex and handicap. Inquiries regarding compliance with Title VI of the Civil Rights Act of 1964, as amended, Title IX of the 1972 Educational Amendments, Section 504, of the Rehabilitation Act of 1973, or related legal requirements should be directed to:

Director, Office of Human Relations
1107 Hornbake Library
The University of Maryland
College Park, MD 20742.

(Complete texts of the University Human Relations Code and the Campus Policies and Procedures on Sexual Harassment are printed in Appendix A and Appendix B of this catalog.)

Inquiries concerning the application of Section 504 and part 84 of C.F.R. to the University of Maryland, College Park MD may be directed to:

Disabled Student Services
0126 Shoemaker Hall
The University of Maryland
College Park, MD 20742.

Disclaimer: The provisions of this publication are not to be regarded as a contract between the student and the University of Maryland. Changes are effected from time to time in the general regulations and in the academic requirements. There are established procedures for making changes, procedures which protect the institution's integrity and the individual student's interest and welfare. A curriculum or graduation requirement, when altered, is not made retroactive unless the alteration is to the student's advantage and can be accommodated within the span of years normally required for graduation. *The campus cannot give assurance that all students will be able to take all courses required to complete the academic program of their choice within eight semesters. Additionally, because of space limitations in selective admission programs, College Park may not be able to offer admission to all qualified students applying to these programs.*

When the actions of a student are judged by competent authority, using established procedure, to be detrimental to the interests of the University community, that person may be required to withdraw from the University. (For the complete University of Maryland Code of Student Conduct, see Appendix C of this catalog.)

Important Information on Fees and Expenses: *All Students Who Pre-register Incur a Financial Obligation to the University.* Those students who pre-register and subsequently decide not to attend must notify the Registrations Office, Room 1130A, Mitchell Building (formerly North Administration Building), in writing, prior to the first day of classes. If this office has not received a request for cancellation by 4:30 p.m. of the last day before classes begin, the University will assume the student plans to attend and accepts his or her financial obligation.

After classes begin, students who wish to terminate their registration must follow the withdrawal procedures and are liable for charges applicable at the time of withdrawal.

State of Maryland legislation has established a State Central Collections Unit, and in accordance with State law, the University is required to turn over all delinquent accounts to it for collection and legal follow-up. This is done automatically on a month-to-month basis by computer read-out.

Collection Costs: Collection costs incurred in collecting delinquent accounts will be charged to the student. The minimum collection fee is 15%, plus any attorney and/or court costs.

Disclosure of Information: In accordance with "The Family Educational Rights and Privacy Act of 1974" (P.L. 93-380), popularly referred to as the "Buckley Amendment," disclosure of student information, including financial and academic, is restricted. Release to anyone other than the student requires a written waiver from the student. (For complete University policy on access to and release of student data/information, see Appendix D of this catalog.)

Gender Reference: The masculine gender whenever used in this document is intended to include the feminine gender as well.

Smoking Policy: It is hereby established as the policy of the College Park Campus to achieve a public environment as close to smoke-free as practicably possible. (See Appendix E of this catalog for the complete "Smoking Policy and Guidelines.")

For the purposes of this publication the term University of Maryland refers only to the campuses existing prior to July 1, 1988. This includes the campuses at Baltimore, Baltimore County, College Park, Eastern Shore and University College.

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1989-90 Academic Calendar

Summer Session I, 1989

First Day of Classes	June 5
Last Day of Classes	July 14

Summer Session II, 1989

First Day of Classes	July 17
Last Day of Classes	August 25

Fall Semester, 1989

First Day of Classes	September 5
Thanksgiving Recess	November 23-26
Last Day of Classes	December 12
Final Examinations	December 14-21
Commencement	December 22

Spring Semester, 1990

First Day of Classes	January 22
Spring Recess	March 19-25
Last Day of Classes	May 14
Final Exams	May 16-23
Commencement	May 24

GUIDE TO INFORMATION

Publications:

Departmental Brochures: Small brochures describing many of the departments and programs at College Park are available free. Write to the Office of Undergraduate Admissions, Mitchell Building, University of Maryland, College Park, MD 20742, or contact the department directly

Graduate Catalog/Graduate Bulletin: For information about obtaining the Graduate Catalog or Graduate Bulletin, call 301/454-3198, or write to the Graduate Office, Lee Building, University of Maryland, College Park, MD 20742.

Prelude: College Park publishes a free mini-catalog and application packet, *Prelude*, for prospective undergraduate students. For a copy of this booklet, call 301/454-5550, or write to the Office of Undergraduate Admissions, Mitchell Building, University of Maryland, College Park, MD 20742

Schedule of Classes: The *Schedule of Classes* lists course offerings and class times and room assignments, registration dates and procedures, deadlines, fees, and general information. The Schedule is published four times a year, twice each semester. The first edition is available prior to early registration for the spring and fall semesters. The second edition, published a few weeks before the beginning of each semester, updates course offerings and registration procedures. The Schedule is available to all students free of charge and can be picked up at the Mitchell Building, Stamp Student Union, Hornbake Library and McKeldin Library

Undergraduate Catalog: The *Undergraduate Catalog* is sent to all students admitted to College Park, and is available free to all undergraduates and faculty at College Park with a valid ID. Copies are available for consultation in libraries and in high schools in Maryland, the District of Columbia, and Virginia. Copies are on sale to the general public for $2.50 to cover postage and handling. Send a check (payable to University Book Center) to the University Book Center, Stamp Student Union, University of Maryland, College Park, MD 20742. Write "Catalog" on the check. Please allow four weeks for delivery

Frequently Called Numbers (The area code for Maryland is 301.)

General Information	454-3311	Campus Parking	454-4242
Undergraduate Admissions	454-5550	On-Campus Housing	454-2711
Student Financial Aid	454-3046	Off-Campus Housing	454-3645
Student Accounts	454-4832	Orientation	454-5752
Advising	454-2733	Summer Programs	454-3347

1 The University of Maryland at College Park

The Goals of An Undergraduate Education at College Park

An education at the University of Maryland at College Park strives to cultivate intellect by teaching students to extend principles and ideas to new situations and to new groups of people. It aims to provide students with a sense of identity and purpose, a concern for others, a sense of responsibility for the quality of life around them, a continuing eagerness for knowledge and understanding, and a foundation for a lifetime of personal enrichment. It enlivens students to enlarge the common understanding, to develop humane values, to celebrate tolerance and fairness, to contribute to the social conscience, to monitor and assess private and collective assumptions, and to recognize the glory, tragedy, and humor of the human condition.

Specifically, undergraduate education at College Park seeks to enable students to develop and expand their use of basic academic and intellectual tools. Students are educated to be able to read with perception and pleasure, write and speak with clarity and verve, handle numbers and computation proficiently, reason mathematically, generate clear questions and find probable arguments, reach substantiated conclusions, and accept ambiguity. Students also study in depth and acquire a substantial competence in a coherent academic discipline.

A College Park education helps students to become aware of the variety of ways of knowing, the complexity of being human, and to understand their place in history and in the contemporary world. Students learn to analyze and appreciate artistic creations, to identify and evaluate moral questions, to synthesize and integrate knowledge, and to become intellectually flexible, inventive, and creative.

From: *Promises to Keep: The College Park Plan for Undergraduate Education,* Approved by the Campus Senate March, 1988

HISTORY

Just after the American Revolution, the state of Maryland established its first two colleges at Chestertown and Annapolis. By the 1850s, at least thirty little colleges had sprung up over the state, many with state support, but many of them disappearing within a few years. Then, in 1859 a different kind of institution appeared at College Park--the Maryland Agricultural College, the third such college in the world, created mainly for farmers' sons.

The college was established by Charles Benedict Calvert, a wealthy planter from nearby Riversdale--now Riverdale--and later a congressman. Calvert built a handsome Gothic dormitory-classroom structure located in a grove of trees near the present Morrill Hall, and he divided the land down to the Baltimore-Washington Turnpike into small plots where each of the 50-or-so students experimented with a different agricultural crop.

After the Civil War the institution became a land-grant college, with small appropriations from Washington. The little college began to grow about 1900 when agricultural experiments began to bring prosperity to Maryland, and when the college expanded its offerings into engineering, business, and the liberal arts. In 1912 the old Gothic building burned, and the state provided modern structures. Women were admitted to the campus, and graduate work began. In 1920 the college combined with the long-established professional schools of Baltimore and changed its name to the University of Maryland.

Growth accelerated after 1935 when the politically astute football coach, H.C. "Curley" Byrd became president, added scores of new programs, and won national football championships. In the 1950s and 1960s, President Wilson H. Elkins maintained the rapid growth, and College Park became one of the largest campuses in the nation. President Elkins, a Rhodes Scholar, transformed the institution's public image from that of a party school to one of academic integrity.

In the 1970s and 1980s, the University's graduate and research programs have especially flourished. In 1987, the General Assembly of Maryland combined six state colleges with the five campuses of the University of Maryland, and specifically charged College Park with the role of leadership. College Park recognizes its special responsibility as the flagship and the largest of the eleven institutions within the statewide university system to lead the University of Maryland's quest for excellence. To this end, College Park offers broad coverage in the traditional arts and sciences as well as in a wide range of professional and pre-professional programs. The institution is organized into fourteen Colleges and Schools encompassing over 100 departments and campus-wide programs of study. A growing number of these departments and programs rank among the best in the nation. Today the University of Maryland stands, by any measure, as one of the leading institutions in the world.

RESEARCH AT COLLEGE PARK

Opportunities for conducting research abound at College Park and in the surrounding area, both for faculty to advance their own expertise and bring their insights back into the classroom, and for students to begin the exploration of their special interests with hands-on experience.

On campus, special facilities and a number of organized research Bureaus, Centers, and Institutes promote the acquisition and analysis of new knowledge in the arts, sciences, and applied fields. A sampling of such facilities includes a computer vision laboratory, a full-scale low-velocity wind tunnel, computer-assisted cartographic laboratories, a psycholinguistics laboratory, a Superconductivity Research Center, the Laboratory for Plasma and Fusion Studies, the Developmental Psychology Laboratory, the Center on Aging, the Systems Research Center, the Engineering Research Center, the Center for Renaissance and Baroque Studies, and the Agricultural Experiment Station.

Off campus, UMCP scientists have placed a Low Energy Charged Particle experiment on board Voyager 2, which will pass Neptune in August, 1989; others are involved in the development of the world's largest array of radio telescopes housed at the Hat Creek Observatory of the University of California at Berkeley. UMCP is leading a multi-institutional excavation of the ruined city of Caesarea Maritima in Israel, where Pontius Pilate lived while serving as Roman governor of Judea. Aided by the Maryland Sea Grant, UMCP zoologists and microbiologists study the fisheries of the Chesapeake Bay.

College Park's unique location--just 10 miles from downtown Washington, D.C., and approximately 30 miles from both Annapolis and Baltimore--enhances the research of its faculty and students because of its access to some of the finest libraries and research centers in the country. These include the National Institutes of Health, the Smithsonian Institution, the USDA Beltsville National Agricultural Research Center and National Agricultural Library, the Library of Congress, the National Archives, the Folger Shakespeare Library, and many other academic and special libraries. In the

Baltimore area, in addition to the University's own libraries at Baltimore County and on the professional campus in Baltimore City, are the Enoch Pratt Free Library and the Maryland Historical Association Library. The state capital at Annapolis is the site of the Maryland Hall of Records.

THE LIBRARIES

The seven libraries which make up the University of Maryland at College Park library system offer outstanding resources and services. The holdings of the Libraries include over 1.92 million volumes, approximately 3.6 million microform units, 22,747 current periodical and newspaper subscriptions as well as over 622,000 government documents, 101,000 maps, and extensive holdings of phonorecords, films and filmstrips, slides, prints, and music scores. The Libraries also feature a collection of over 1.3 million technical reports--one of the most outstanding collections of its kind in the nation.

Hornbake Library is the undergraduate library, providing reference, circulation and reserve services in all subject areas to undergraduate students. A late-night study room is open 24 hours during the fall and spring terms. Nonprint Media Services, located on the fourth floor of Hornbake, is the central audio-visual department for the UMCP Libraries. The collection consists primarily of videocassettes, films, audiocassettes, and the equipment and facilities to use them.

The Theodore R. McKeldin Library is the main research library of the UMCP library system. The combined online and card catalogs at McKeldin include records of holdings for the entire UMCP library system. In addition, McKeldin's reference works, periodicals, circulating books, special collections and other materials provide support for research and teaching throughout the University, with special emphasis on the humanities, the social sciences, and the life sciences.

The five specialized branch libraries on campus offer extensive resources which provide essential support for study, research, and teaching. These include the Architecture Library, the Art Library, the Engineering and Physical Sciences Library, the Music Library, and the White Memorial (Chemistry) Library.

Included among the most outstanding special holdings of the Libraries are the International Piano Archives at Maryland, a world-renowned collection of piano performance materials; the National Trust for Historic Preservation Library, located in the Architecture Library; the Maryland Room--a major center for Maryland studies; the Gordon W. Prange Collection of Japanese-language publications, 1945-49; the U.S. Patent Depository Library; the Government Document and Maps Room, featuring U.S. government publications as well as publications of the United Nations, the League of Nations and other international organizations, maps from the U.S. Army Map Service and the U.S. Geological Survey; the Katherine Anne Porter Collection; and the East Asia Collection.

COMPUTER SCIENCE CENTER

The Computer Science Center supports on-campus computing through a full range of quality computing services. It offers many training courses in popular microcomputer and mainframe software packages, as well as consulting and "first aid" services. The Center supports advanced workstation and microcomputer laboratories across campus for day and evening self-study and class projects. To support teaching and research, the Center offers networked computer resources, including IBM and Unisys mainframes and special purpose scientific computers. Qualified researchers at College Park may also access off-campus supercomputers. The Center also houses a Program Library and operates a computer store, which sells microcomputers and provides low cost service and maintenance to members of the campus community.

ACCREDITATION

The University of Maryland is accredited by the Middle States Association of Colleges and Secondary Schools and is a member of the Association of American Universities. In addition, individual colleges, schools, and departments are accredited by such groups as the American Association of Collegiate Schools of Business, the American Chemical Society, the National Association of Schools of Music, the Section of Legal Education and Admissions to the Bar of the American Bar Association, the Accrediting Council on Education in Journalism and Mass Communications, the American Council on Pharmaceutical Education, the Council on Dental Education of the American Dental Association, the Committee on Accreditation of the American Library Association, the American Psychological Association, the Commission on Accreditation of the Council on Social Work Education, the Council on Medical Education of the American Medical Association, the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (see College of Engineering for a listing of accredited engineering programs), the National Council for Accreditation of Teacher Education, the National League for Nursing, and the National Architectural Accrediting Board. In addition, all programs in the Department of Human Nutrition and Food Systems have been approved by the American Dietetic Association.

UNDERGRADUATE PROGRAMS OF STUDY

College of Agriculture

- Agricultural Chemistry
- Agricultural Engineering
- Agriculture
- Agriculture/Veterinary (combined)
- Agricultural and Extension Education
- Agricultural and Resource Economics
- Agronomy
- Animal Sciences
- Food Science
- Horticulture
- Natural Resources Management Program

School of Architecture

- Architecture
- Architecture/Urban Studies

College of Arts and Humanities

- Advertising Design
- American Studies
- Art
- Art History
- Classical Languages and Literatures
- Dance
- East Asian Languages and Literatures
- English Language and Literature
- French Language and Literature
- Germanic Languages and Literatures
- History
- Housing
- Interior Design
- Jewish Studies
- Linguistics
- Music
- Philosophy
- Radio/Television/Film
- Romance Languages
- Russian Area Studies
- Russian Languages and Literature
- Spanish Languages and Literature
- Speech Communication
- Theatre

College of Behavioral and Social Sciences

- Afro-American Studies
- Anthropology
- Criminal Justice
- Criminology
- Economics
- Geography
- Government and Politics
- Hearing and Speech Science
- Psychology
- Sociology
- Urban Studies

College of Business and Management

- Accounting
- Business/Law
- Finance
- General Business Administration
- Management Science and Statistics
- Marketing
- Personnel and Labor Relations
- Production Management
- Transportation

College of Computer, Mathematical, and Physical Sciences

- Astronomy
- Computer Science

Geology
Mathematics
Physical Sciences
Physics

College of Education

Early Childhood Education
Elementary Education
Industrial Arts
Industrial Technology
Secondary Education
- Art
- English Language Arts
- Foreign Language
- General Business
- Home Economics
- Marketing and Distribution
- Mathematics
- Music
- Science
- Secretarial
- Social Studies
- Speech and English
- Theatre and English

Special Education
Vocational/Technical Education

College of Engineering

Aerospace Engineering
Agricultural Engineering
Chemical and Nuclear Engineering
Civil Engineering
Electrical Engineering
Engineering
Fire Protection Engineering
Mechanical Engineering

College of Human Ecology

Apparel Design
Community Studies
Consumer Economics
Dietetics
Experimental Foods
Family Studies
Foodservice Administration
Human Nutrition and Foods
Management and Consumer Studies
Textile Marketing/Fashion Merchandising
Textile Science

College of Journalism

College of Life Sciences

Biochemistry
Biological Sciences
Botany
Chemistry
Entomology
Microbiology
Zoology

College of Physical Education, Recreation and Health

Health Education
Kinesiological Sciences
Physical Education
Recreation

Undergraduate Studies

Allied Health Professions/
Pre-professional Options
Pre-Dental Hygiene
Pre-Medical Technology
Pre-Nursing
Pre-Pharmacy
- Pre-Physical Therapy
- Pre-Dentistry*
- Pre-Law*
- Pre-Medicine*
- Pre-Optometry*
- Pre-Osteopathic Medicine*
- Pre-Podiatric Medicine*
- Pre-Veterinary Medicine*

*Advising available

General Honors Program
Individual Studies
Undecided Undergraduate Studies

Campus-Wide Certificates

Afro-American Studies
Applied Social Science
East Asian Studies
Liberal Arts in Business
Women's Studies

2 Admissions Requirements and Application Procedures

Freshman Admissions Criteria

The University of Maryland is a publicly-supported land grant institution dedicated primarily to the educational needs of Maryland residents. Within its responsibilities as a State institution, the University attracts a cosmopolitan student body and each year offers admission to a number of promising students from other states and jurisdictions. Currently, fifty states, the District of Columbia, two territories, and 100 foreign countries are represented in the undergraduate population. Admissions policies for the upcoming semesters are determined by the Board of Regents.

The University of Maryland at College Park maintains a competitive admissions policy, with priority given to those students with the most outstanding academic credentials, and seeks to enroll students who demonstrate the potential for academic success. That potential is typically assessed by examination of high school course work and SAT scores. In general, all entering students should have completed four years of high school English; three years of history or social science; two years of science, both of which will involve laboratory work, and three years of mathematics courses equivalent at least to Algebra I, Algebra II, and Plane Geometry; and beginning in fall 1991, two years of a foreign language. In addition, students are strongly encouraged to take a fourth year of mathematics and prior to 1991, at least two years of a foreign language.

Criteria for Out-of-state Applicants

The University is committed to developing a cosmopolitan student body. Therefore, applications from students residing in jurisdictions other than Maryland are welcome. Generally, a successful out-of-state applicant must have higher than average SAT scores and high school grades.

Subjects Used for Computation of the High School Academic Grade Point Average

Because of variations in course titles in the secondary school systems, this listing is not inclusive. It does, however, provide examples of the types of courses College Park utilizes in computing the high school academic grade point average.

English. Communications, Composition, Conversational Language, Creative Writing, Debate, Expressive Writing, Journalism, Language Arts, Literature, Public Speaking, World Literature.

Foreign Languages. French, German, Greek, Hebrew, Italian, Latin, Russian, Spanish, Other.

Mathematics. Advanced Topics, Algebra I, Algebra II, Analysis (or Elementary Analysis), Analytic Geometry, Calculus, Computer Math, Functions, Geometry, Mathematics II, Mathematics III, Mathematics IV, Matrices Probabilities, Modern Geometry, Modern Math, Probability and Statistics, E.A.M. (Rev. Acad. Math), S.M.S.G., Trigonometry.

Science. Advanced Biology, Advanced Chemistry, Biology, Chemistry, Earth Science, General Science, Genetics, Geology, Laboratory Science, Physical Science, Physics, Space Science, Zoology.

Social Studies. Afro-American Studies, American History, Ancient History, Anthropology, Child Development, Civics-Citizenship, Contemporary Issues (C.I.S.S.), Cultural Areas, Cultural Heritage, Economics, Economic Citizenship, Ethics (if considered to be Religion, not counted), European History, European History and Survey, Family Living, Far East, Geography, Government, Humanities, International Affairs, Medieval History, Modern History, Modern Problems, National Government, Pan American, Philosophy, Political Science, Problems of Democracy, Problems of 20th Century, Psychology, Sociology, State History, U.S. History, World Civilization, World Cultures.

SAT Scores

The SAT examination is required of all freshman applicants. Test results must be submitted directly to College Park by the Educational Testing Service or be included on the high school transcript. The applicant is strongly urged to include his/her social security number when registering for the SAT. The social security number will expedite processing of the application for admission by College Park. The reporting code for College Park is 5814. The University strongly recommends that the SAT be taken as early as possible. The January test is generally the latest acceptable examination for fall applicants. Further information on the SAT may be obtained from high school guidance offices or directly from the Educational Testing Service, Princeton, New Jersey 08540.

While SAT's and GPA's play an important role in the admissions process, they are not the sole factors in determining a candidate's admissibility. The Admissions Committee may review a student in light of his or her unique talents and abilities. Students with accomplishments in other realms, such as fine arts, leadership, and athletics, should make this information available to the Admissions Office.

To help you evaluate your chances for admission to College Park, a profile of students enrolled in the Fall 1988 freshman class is provided.

	Total Freshman Class
SAT Score	**Enrolled (%)**
1200 or above	15
1000 to 1199	54
800 to 999	22
799 or below	5
No Scores	4
Academic Grade Point Average	**Enrolled (%)**
3.5 or above	16
3.0 to 3.49	30
2.5 to 2.99	35
2.0 to 2.49	14
1.99 or below	1
No GPA	4

High School Transcripts

In general, College Park requires freshman applicants to earn a high school diploma prior to their first registration at the University. Applicants should make sure their final high school transcripts are sent to the Office of Undergraduate Admissions prior to enrolling. *All offers of admission are contingent upon satisfactory completion of current work.*

Use of Mid-Year Grades

The University will reserve a decision on the applications of Maryland residents who do not meet the criteria outlined above until mid-year grades are available for the senior year in high school. College Park is unable to utilize the final high school marks in rendering decisions for applicants who are applying for admission directly from high school.

If mid-year grades for the senior year in high school are available when an application is initially considered by the College Park admissions staff, they will be used in determining eligibility for admission.

Advanced Placement Credit (AP)

General Statement

The following AP examinations are accepted for credit at College Park according to the criteria outlined below. If Advanced Placement credits are already on a student record from an institution outside the University of

Maryland System, the score must be equivalent to a minimum score the University accepts, otherwise the credit will not be considered for transfer. Students will be expected to provide the Advanced Placement score reports from the Educational Testing Service.

AP Examinations Accepted for Credit at UMCP

Art. For achievement of a score of 3, three hours of credit are granted for ARTH 100. For a score of 4 or 5, six hours of credit are granted for ARTH 260 and 261.

Biology. For achievement of a score of 5 or 4, eight hours of credit are granted. The student may not take BOTN 101 or ZOOL 101 for credit, the student may take any course for which BOTN 101 or ZOOL 101 is prerequisite. For achievement of a score of 3, four hours of credit are granted. Students who wish to go further in botany or zoology should consult with an advisor or the appropriate department head about their exact placement in their individual curricula.

Chemistry. For achievement of a score of 5 or 4, eight hours of credit are granted. The student may not take CHEM 101, 102, 103, 105, 113, or 115 for credit, the student may take any course for which CHEM 113, is a prerequisite. For achievement of a score of 3, four hours of credit are granted. The student may not take CHEM 101, 102, 103, or 105 for credit, but may take any course for which CHEM 103 or 105 is a prerequisite. Students desiring to take additional courses in chemistry should consult with the Chemistry Department concerning their exact placement in a sequence appropriate to their programs.

Computer Science. Upon achieving a score of 5 on the AB examination, six hours of credit will be granted. For a score of 4 on the AB examination or a score of 5 on the A examination, four hours of credit will be granted. The student may not take CMSC 120 for credit.

English. For a score of 4 or 5 on the "Literature and Composition" examination, six hours of credit will be granted (three for English 101 and three for English 102). For a score of 4 or 5 on the "Language and Composition" examination, six hours of credit will be granted (three for English 101 and three for English 291). For a score of 3 on the "Literature and Composition" examination, three credits (for English 102) will be granted, and for a score of 3 on the "Language and Composition" examination, three credits (for English 291) will be granted. A score of 3 does *not* exempt students from the USP freshman level requirement. A score of 4 or 5 does not exempt students from the USP junior level requirement. A score of 600 on the SAT Verbal still exempts students from English 101.

Government. American Government and Politics. Students achieving a score of 3 or higher will receive three hours of credit. The student may not take GVPT 170 for credit.

Comparative Government and Politics. Students achieving a score of 3 or higher will receive three hours of credit. The student may not take GVPT 280 for credit.

History

American History. Students who attain a score of 4 or 5 on the Advanced Placement examination in American history are given six hours of lower-level credit in history; they may not take HIST 156 or 157 for credit, but may take any courses for which these are prerequisites. Students who attain a score of 3 on this examination are given three hours of lower-level credit in history: they may not take *both* HIST 156 and 157 for credit, but may take any courses for which these are prerequisite. Elective credit only.

European History. Students who attain a score of 4 or 5 on the Advanced Placement examination in European history are given six hours of lower-level credit in history; they may not take HIST 130, 131, 132, or 133 for credit, but may take any courses for which these are prerequisite. Students who attain a score of 3 are given three hours of credit, they may not take HIST 130, 131, 132, or 133 but may take any courses for which these are prerequisites. Elective credit only.

Language

French. For achievement of a score of 3 on the French language examination, three hours of credit are earned. The student may take either FREN 201 or 211 for credit. For achievement of a score of 4 or 5 on the French language examination, six hours of credit are earned. The student may not take FREN 201 or 211 for credit. (Native speakers of French, i.e., those whose language of instruction in elementary school was French may not earn credit by means of this examination.)

For achievement of a score of 3 or better on the French literature examination, three hours of credit are earned. The student may not take more than one of the following for credit: FREN 251, 252. For achievement of a score of 4 or 5 on the French literature examination, six hours of credit are earned. The student may not take FREN 251 or 252 for credit.

Students who wish to continue in French must consult with the Department of French regarding placement.

German. For achievement of a score of 3 or better, six hours of credit are granted. The student may not take GERM 111, 112, 114 or 115 for credit. A student who wishes to continue with German should take GERM 301 or 221.

Latin. For achievement of a score of 5 or 4 on the Virgil test, six hours of credit are granted, however, only three of these may be applied toward meeting the requirements for a major in Latin. For achievement of a score of 3, three hours of credit are granted. A student receiving credit on the basis of the Advanced Placement examination may not take LATN 305 or any lower numbered courses for credit. A student who wishes to take further work in Latin should register for LATN 351. (No advanced placement credit is given for performance on the comedy, lyric, or prose examination.)

Spanish. For achievement of a score of 5 or 4 on the Spanish language examination, six hours of credit are granted. If students wish to continue in Spanish, they must begin with courses on the 300 level, after consultation with a departmental advisor.

Mathematics. For achievement of a score of 5 or 4 on the calculus BC test, eight hours of credit are granted. The student who wishes to take further mathematics will be placed (usually) in MATH 240 or 241. For achievement of a score of 3, either four or eight hours of credit are granted: four hours to a student placed in MATH 141 and eight hours to a student placed in MATH 240.

For achievement of a score of 5 or 4 in the calculus AB test, four or eight hours credit are granted: four hours to a student placed in MATH 141 and eight hours to a student placed in MATH 250. For achievement of a score of 3, either three or four hours of credit are granted, three hours to a student placed in MATH 221 and four hours to a student placed in MATH 141.

In any case, students may not take for credit any course of lower level than that of their placements. However, students given permission to register in MATH 150 may do so without loss of the credit granted.

Actual placement will follow from a personal interview of each qualifying student with the Chairman, Advanced Placement Committee of the Department of Mathematics.

Music

Music Listening and Literature. Upon achieving a score of 3 or better, three hours of credit will be granted. The student may not take MUSC 130 for credit.

Music Theory. Upon achieving a score of 3 *non-music majors only* will be granted three hours of credit for MUSC 140. For a score of 4 or better *non-majors only* will be granted six hours of credit, and may not take MUSC 140 and 141. Upon achieving a score of 4 *music majors only* will receive three hours of credit and may not take MUSC 150 for credit. For a score of 5 *music majors only* will receive six hours of credits and may not take either MUSC 150 or 151 for credit.

Physics. Placement in physics is necessarily related to the student's level of mathematical sophistication; consequently, scores on the mathematics test are considered in conjunction with those on the physics test. Specific placement and credit arrangements are:

a. For achievement of a score of 4 or better on the calculus BC test *and* a score of 4 or better on each part of the physics course C test the student may receive credit for courses 161-262 or 141-142. For those interested in the physics major sequence 191-192, 293-294, eight hours of credit will be granted and students will be placed in courses appropriate to their level after consultation with an advisor.
b. For achievement of a score of 4 or better on the calculus BC test, and a score of 4 or better only on part I (II) of the physics course C test the student may receive credit for courses 161 (262) or 141 (142). Those interested in the 191-192, 293-294 sequence will receive four hours of credit and be placed in a course after discussion with their advisors.
c. Three hours of credit will be granted for each part of the physics course C test passed with a score of 3 or better. Six hours of credit will be granted for a score of 4 or better on the physics course B test. In both these cases the granting of credit is independent of the score on the calculus BC test.
d. A student with three or six hours of advanced placement credits in PHYS 121 or 122, but needing additional credits for the laboratory work should contact the Associate Chair, Department of Physics, 454-3403.
e. Physics and astronomy majors should consult with their advisors and all others with the advanced placement advisor about how best to use advanced placement and credit.

Special Admissions Options

To serve students who are not typical freshmen, College Park has developed special options for admission:

Admissions Options for High Achieving High School Students

1. *Concurrent Enrollment.* Talented high school seniors have the opportunity to enroll at College Park for two courses, or seven credits, each

semester. Successful applicants will have pursued a rigorous high school program and will have indicated exceptional performance and ability achieved over time. To apply, students must submit (1) the completed application and fee, and (2) high school transcripts, (3) an essay explaining why they are interested in the program, (4) a letter of recommendation from the high school, and (5) a letter of permission from the parents or guardian. Students must live within commuting distance. Tuition and fees are assessed on a per-credit-hour basis.

2. *Summer Enrollment.* High school students with a minimum 3.00 (B) average may enroll for courses during the summer preceding their junior or senior year. They must file a regular application and transcripts. Tuition and fees are assessed on a per-credit hour basis.
3. *Early Admission.* Although the University of Maryland at College Park generally requires applicants to earn a high school diploma prior to their first full-time registration, College Park will admit a limited number of well-qualified students without high school diplomas. Successful applicants will have pursued a rigorous high school program and will have indicated exceptional performance and ability achieved over time. Students must be within two credits of high school graduation and have the commitment of the high school to award a diploma after successful completion of the freshman year at Maryland. To apply, students must submit (1) the completed application and fee, (2) high school transcripts and SAT results, (3) an essay explaining how they will benefit from the program, (4) a letter of permission from the parents or guardian.

   Early admission students are eligible for on-campus housing, merit-based scholarships, and the General Honors Program. Early application is advised.
4. *Gifted Student Admission.* The University admits a limited number of gifted students who have completed at least the seventh grade, have an SAT combined score of 1200, or the equivalent on a nationally accepted college entrance exam, and have a superior academic record. Students must have an initial admissions conference with a member of the Undergraduate Admissions staff. The Admissions Staff may, if it is deemed helpful to the admissions decision, make referrals for further assessment to campus counseling services.

High School Equivalence Examination (GED)

Maryland residents who are at least 16 years of age and who have not received a high school diploma may be considered for admissions, provided they have earned the high school General Education Equivalency (GED) certificate. In order to be admitted, the applicant must present an above average total score, as well as above average scores on each of the five parts of the test.

Non-Accredited/Non-Approved Maryland High School

There are specific academic requirements for applicants from non-accredited/non-approved Maryland high schools. Students from non-accredited/non-approved high schools who seek admission to College Park should contact the Admissions Office for information.

Modified Rolling Admissions Plan

The University of Maryland at College Park uses a modified rolling admissions process. The following chart describes the notification procedures for fall 1990 applicants. Spring 1991 applicants are handled on a rolling admissions basis and should submit their completed applications by December 15, 1990.

Important Dates for Fall 1990 Freshmen Applicants

Date	Action
December 1, 1989 Priority deadline for on-campus housing and scholarships	Applications completed* by this date will be reviewed for admission. The most talented students will be admitted and others will be encouraged to send new SATs and 12A grades for further consideration. Decisions released on December 21, 1989
February 15, 1990**	Applications completed by this date and those deferred from December 1st will be reviewed for admission. Admission, denial, or waitlist decisions will be released March 15, 1990.
March 15, 1990**	Applications completed by this date will be reviewed. Decisions will be released on April 1, 1990.
April 30, 1990**	Estimated freshman application deadline. All applications completed between March 15 and April 30, 1990 will be reviewed on a on a rolling basis.
May 1, 1990	Enrollment confirmation deadline. All admitted students must confirm intention to enroll in writing with $100 deposit.
June 1, 1990	Students who were initially waitlisted will be notified of decisions no later than this date.

* A completed application received by Undergraduate Admissions will include official high school transcript and SAT report, application and $25 fee.

** Because of space limitations, College Park may not be able to accommodate all qualified students who apply before the published deadlines. We urge students to apply significantly earlier than the deadlines noted above.

Transfer Admission Criteria

A student who has attended any regionally accredited institution of higher education following graduation from high school and attempted nine or more credits will be considered for admission as a transfer student. In calculating eligibility, the University will use the average stated on the transcript by the sending institution. When an applicant has attended more than one institution, a cumulative average for all previous college work attempted will be used. Transfer applicants must be in good academic and disciplinary standing at their previous institutions to be eligible for transfer to College Park.

Where the number of students desiring admission exceeds the number that can be accommodated on the campus, or in a particular professional or specialized program, admission will be based on overall grade point average and the strength of the academic program the student has pursued.

Requirements

Admission for transfer applicants is primarily based on the number of credits a student has earned and the cumulative grade point average for all college-level work. To be considered, course work must have been completed at a regionally accredited college or university. The grade point average requirement can vary, depending on the availability of space, but should not be lower than 3.0. All students with grade point averages below 3.0 will be considered on a space available basis. In accordance with Maryland State Board for Higher Education transfer policies, applicants from Maryland community colleges are, in some instances, given special consideration, and, when qualified, can be admitted with a cumulative grade point average of 2.0 or better. Students who were not admissible as high school seniors must complete at least twenty-eight semester hours with the grade point average as stated above.

Undergraduate Students Transferring from Within the University System

A student seeking to move from one campus of the University to another must have been a regular degree-seeking student eligible to return to his or her original campus.

Students who were special or non-degree students must contact the admissions office of the receiving campus. Undergraduate students who are not eligible to return to their original campus must be reinstated there before being considered for admission to College Park.

Students must comply with the normal deadlines and, where space is limited, admission to the new campus will be based on criteria designed to select the best qualified students.

Transfer Students from Maryland Community Colleges

Currently, Maryland residents who attend Maryland public community colleges may be admitted in accordance with the criteria outlined in the general statement above. The University subscribes to the policies set forth in the Maryland State Board of Higher Education Transfer Policies. Where the number of students desiring admission exceeds the number that can be accommodated in a particular professional or specialized program, admission will be based on criteria developed by the University to select the best qualified students.

Transfer of Credits

General Statement. In general, credit from academic courses taken at institutions of higher education accredited by a regional accrediting association will transfer, provided that the appropriate academic officials at this campus consider such courses part of the student's curricular program and that the student earned at least grades of C in those courses. An academic advisor will discuss this and other matters during the period of registration.

Maryland Public Colleges and Universities. Transfer of coursework completed at Maryland public colleges and universities is covered by the Maryland State Board for Higher Education Transfer Policies.

Community College Articulated Programs. An articulated transfer program is a list of community college courses that best prepare the applicant for a particular course of study at College Park. If the applicant takes appropriate courses that are specified in the articulated program guide, and earns an acceptable grade, he/she is guaranteed transfer with no loss of credit.

Articulated career program guides help students plan their new programs after changing career objectives. The guides are available at the Office of Undergraduate Admissions at College Park and in the transfer advisor's office at each of the community colleges. If the applicant checks this guide he/she can eliminate all doubt concerning transfer of courses by following a program outlined in the guide.

University of Maryland System. Credits for undergraduate courses will transfer to College Park from other University of Maryland campuses. The applicability of these courses to the particular program chosen at College Park will be determined by an academic adviser/evaluator in the office of the dean (see section on Orientation Programs, below).

Other Universities and Colleges. In most cases credit will transfer from institutions of higher education accredited by a regional accrediting association (e.g., Middle States Association of Colleges and Schools; New England Association of Schools and Colleges; North Central Association of Colleges and Schools; Northwest Association of Colleges and Schools; Southern Association of Colleges and Schools; Western Association of Colleges and Schools), provided that the course is completed with at least a grade of C and the course is similar in content and level to work offered at College Park. The applicability of these courses to the particular course of study chosen at College Park will be determined by an academic adviser/evaluator in the office of the appropriate dean.

Foreign Language Credit. Transfer of foreign language credit is usually acceptable in meeting requirements. Prospective students should consult the appropriate sections of this catalog to determine the specific requirements of various colleges and curricula.

Advanced Placement Credit. If Advanced Placement credits are already on a student record from an institution outside The University of Maryland System, the score must be equivalent to a minimum University score or the credit will not be considered for transfer.

State Board for Higher Education Transfer Policies

These policies are currently under review. Students are advised to consult with the transfer coordinator or advisor.

The University of Maryland fully subscribes to the Maryland State Board for Higher Education Transfer Policies. A complete text of the policy follows.

These Student Transfer Policies, developed by a special task force of the Segmental Advisory Committee, were adopted by the Maryland State Board for Higher Education on November 1, 1979. In view of the Board's sensitivity to the need of the institutions and segment boards to have sufficient lead time to make these policies operational, the new policies shall be effective and applicable to students enrolling in Maryland's public postsecondary education institutions in fall, 1980, and thereafter. At that time they will supersede SBHE student transfer policies in effect since 1972.

Preamble

The major objective of these policies is to relate in operational ways the undergraduate programs offered in the public sector of higher education in Maryland. These policies aim at equal treatment of native and transfer students. The effectiveness of these policies, since their promulgation in December 1972, has been confirmed by the minimal loss of credits experienced by students transferring within the public sector, by the apparent satisfaction of these students, and by the absence of appeals concerning the transferring of credits.

The intended principal benefactor is the student, who is best served by current information about programs and protected by firm arrangements among the public segments of higher education in Maryland that permit him to plan a total degree program from the outset. With successful academic performance, he or she can make uninterrupted progress even though transfer is involved. The measures of the effectiveness of the plan is maximum transferability of college level credits within the parameters of this agreement. Essentially, transfer and native students are to be governed by the same academic rules and regulations.

In a complementary way the State's interests are served by having its higher education resources used optimally by reducing the time taken to complete a degree through the avoidance of repeated class experience.

The institutional interests are protected also by the systematic approach; institutions are relieved of the uncertainties of unplanned articulation without becoming production line enterprises.

The dynamics of higher education preclude one-and-for-all time curricula and perpetual grading and retention systems. However, within the general structure of this plan there is opportunity for continual updating of the details.

In more specific ways this document's purpose is (1) to recommend specific areas of agreement among the public two-year and four-year institutions of higher education pertaining to facilitating the transfer of students within these segments, (2) to provide for a continuous evaluation and review of programs, policies, procedures, and relationships affecting transfer of students, (3) to recommend such revisions as are needed to promote the academic success and general well-being of the transfer student, and (4) to provide a system for appeals.

Policies

1. Public four-year colleges and universities shall require attainment of an overall 2.0 average on a four-point scale by Maryland resident transfer students as one standard for admission. If the student has attended two or more institutions, the overall 2.0 will be computed on grades received in courses earned at all institutions attended unless the student presents an Associate in Arts degree.
   (a) Each public institution of higher education shall designate a person responsible for coordinating transferability to assist in accomplishing the policies and procedures outlined in this plan. The State Board for Higher Education will support requests by a public institution of higher education to establish the position of transfer coordinator.
   (b) Efforts shall be intensified among the sending institutions, based on shared information, to counsel students on the basis of their likelihood of success in various programs and at various institutions. (See par. 1 (c) and par. 9).
   (c) Procedures for reporting the progress of students who transfer within the State shall be developed as one means of improving the counseling of prospective transfer students.
2. Admission requirements and curriculum prerequisites shall be stated explicitly in institutional publications. Students who enroll at Maryland Community Colleges shall be encouraged to complete the Associate in Arts degree or to complete fifty-six hours in a planned sequence of courses that relate to general education and the selection of a major before transfer. Subsequent graduation from the receiving four-year institution is not assured within a two-year period of full-time study.
   (a) Students from Maryland Community Colleges who were admissible to the four-year institution as high school seniors and who have attained an overall 2.0 average in college and university parallel courses shall be eligible for transfer at any time, regardless of the number of credits. Those students who have been awarded the Associate in Arts degree or who have successfully completed fifty-six hours of credit with an overall 2.0 average in college and university parallel courses in either case shall not be denied transfer to an institution. If the number of students desiring admission exceeds the number that can be accommodated in a particular professional or specialized program or certain circumstances exist that require a limitation being placed on the size of an upper division program or on the total enrollment, admission will be on criteria developed and published by the receiving institution, which provides equal treatment for native and transfer students.
   (b) Course semester hour requirements that students must meet to transfer with upper division standing shall be clearly stated by the receiving institution.
   (c) The establishment of articulated programs is required in professional and specialized curricula.
3. Information about transfer students who are capable of honors work or independent study shall be transmitted to the receiving institution.
4. Transfer students from newly established public colleges that are functioning with the approval of the State Board for Higher Education shall be admitted on the same basis as applicants from regionally accredited colleges.
5. (a) Credit earned at any other public institution in Maryland shall be transferable to any other public institution provided
      (1) the credit is from a college or university parallel program;
      (2) the grades in the block of courses transferred average 2.0 or higher, and
      (3) the acceptance of the credit is consistent with the policies of the receiving institution governing students following the same program.
   (b) Credit for the CLEP general examinations will be considered for transfer only for scores at the 50th percentile, and above, of the combined national men-women sophomore norms. The exact number of credits awarded, if any, in transfer will be determined by the same regulations that pertain to native students in the receiving institution. The percentile needed to transfer credit for the CLEP subject examination will be determined by the receiving institution. Segmental/Institutional governing boards shall submit to the State Board for Higher Education by December 1st of each year data collected from the institutions concerning the credit given, minimum scores and equivalent courses of the CLEP subject examinations. This data will be distributed annually by the State Board for Higher Education to transfer advisors at all institutions. To facilitate the transfer of Advanced Placement and CLEP credit, the achievement score for Advanced Placement and the scaled score, percentile rank, and the type of examinations (General or Subject) for the CLEP shall be reported on the transcript when credit is awarded.
   (c) The Associate in Arts degree shall serve the equivalent of the lower division general education requirements at the receiving institution

where the total number of credits required in the general education program in the sending institution is equal to or more than that required in the receiving institution and where the credits are distributed among the arts and sciences disciplines.

(d) The determination of the major program requirements for a baccalaureate degree, including courses in the major taken in the lower division, shall be the responsibility of the institution awarding the degree.

6. Transfer of credits from the following areas shall be consistent with the State minimum standards and shall be evaluated by the receiving institution on a course-by-course basis:
   (a) Courses from technical (career) programs
   (b) Orientation courses
   (c) Remedial courses.
   (d) Courses credited by a university or college that has no direct academic and administrative control over the students or the faculty involved in the courses
   (e) Credit for work experiences
7. Credit earned in or transferred from a community college shall normally be limited to approximately half the baccalaureate degree program requirement, but in no case more than 70 credits, and to the first two years of the undergraduate educational experience.
8. Transfer students shall be given the option of satisfying graduation requirements that were in effect at the receiving institution at the time they enrolled as freshmen at the sending institution, subject to conditions or qualifications that apply to native students.
9. Institutions shall notify each other as soon as possible of impending curricular changes that may affect transferring students. When a change made by one institution necessitates some type of change at another institution, sufficient lead time shall be provided to effect the change with minimum disruption.
10. Community college students are encouraged to choose as early as possible the institution and program into which they expect to transfer
11. The Segmental Advisory Committee shall continue to review articulation issues and shall recommend policy changes as needed to the State Board for Higher Education.
12. In the event a transfer student believes he or she has not been accorded the consideration presented in this policy statement, the student shall have the opportunity to have the situation explained or reconciled.

Initially, differences of interpretation regarding the award of transfer credit shall be resolved between the student and the institution to which he is transferring. If a difference remains unresolved, the student shall present his/her evaluation of the situation to the institution from which the student is transferring. Representatives from the two institutions shall then have the opportunity to resolve the differences.

The sending institution has the right to present an unresolved case to the Segmental Advisory Committee through a written appeal to the State Board for Higher Education. The SAC shall receive relevant documentation, opinions, and interpretations in written form from the sending and receiving institutions and from the student. The Segmental Advisory Committee will send the written documentation to a pre-established articulation committee which, after review, will submit its recommendations to the Segmental Advisory Committee.

Copies of the recommendation shall be forwarded by the State Board for Higher Education to the segments for distribution to the appropriate institutions.

A complaint on transfer status must be initiated by the student within one calendar year of his/her enrollment in the receiving institution.

General Application Procedures

Application Forms. Application forms may be obtained by writing to Office of Undergraduate Admissions, Mitchell Building, University of Maryland, College Park, MD 20742,or by calling (301) 454-5550. Also, application forms are available in many high school guidance offices

Application Fee. A non-refundable $25.00 application fee is required with each application.

Application Deadlines. College Park strongly urges that all applicants apply early before stated deadlines to assure consideration for admission. Because of space limitations, the campus may not be able to offer admission to all qualified applicants.

For each term, applications will be processed on a space-available basis.

Fall 1989 Matriculation

March 1, 1989-International students' deadline for submission of applications and all other required documents

July 30, 1989-Transfer applicants' deadline for submission of applications and all other required documents

Spring 1990 Matriculation

August 1, 1989-International students' deadline for submission of applications and all other required documents

December 15, 1989-Undergraduate applicants' deadline for receipt of applications and all other required documents

Fall 1990 Matriculation

December 1, 1989-Applications, transcripts, and SAT results (freshmen only) must be received for freshman and transfer students who are eligible for admission and wish to receive first consideration for housing within their own priority group for Fall 1990*

February 1, 1990-Architecture applicants must apply by this date to be assured of consideration

March 1, 1990-International students' deadline for submission of applications and all other required documents.

April 30, 1990-Estimated freshman applicants' deadline for receipt of applications and all other required documents. Please note space may not be available to accommodate all qualified freshmen who apply by this date.

July 30, 1990-Transfer applicants' deadline for submission of applications and all other required documents

*Transfer applicants who are enrolled as first semester freshmen during the Fall 1989 semester (enrolled in a college or university for the first time) are eligible to receive first consideration for housing within their own priority group if: (1) the application and high school transcript are received in the Office of Undergraduate Admissions by December 1, 1989 and (2) the applicant's college or university transcript reflecting Fall 1989 grades is received in this office by January 1, 1990

Admission to Selective Majors

Certain colleges, schools, and departments within the University have taken steps to limit their enrollment to maintain quality programs. These include: School of Architecture, College of Business and Management, College of Engineering, Department of Computer Science, Department of Economics, Department of Electrical Engineering, Department of Housing and Design, College of Journalism, Department of Radio-Television-Film, Department of Special Education, and all teacher education majors. *Enrollment is competitive, and except for a select number of outstanding freshmen, students must complete a particular set of requirements before admission.*

Students not admitted directly as freshmen may still enroll on the campus as pre-business, pre-computer science, pre-engineering, or other pre-majors. However, admission as a preprofessional student does not guarantee subsequent admission to any of the majors. To assess your chances of being admitted at a later date, contact an academic advisor within the appropriate program.

Students who do not meet the requirements for admission to a selective major, but who are eligible for admission to the College Park Campus, must choose an alternate, **non-selective** major. While enrolled in an alternate course of study, students may pursue requirements for eventual enrollment in the selective major.

For specific requirements not detailed in the following sections applicants are urged to contact the Office of Undergraduate Admissions. See also individual school, college or department entries in this catalog.

Architecture

Admission to the School of Architecture is generally limited to students who enroll as juniors.

To be considered for admission, all applicants—whether they are currently enrolled at College Park or transfer students—must submit a portfolio. The portfolio should be organized in an 8½" x 11" loose leaf notebook, and it must demonstrate strong creative ability. In addition, students in all level work should have at least a 3.0 grade point average overall. They should have completed freshman English and appropriate coursework in calculus and physics. Architecture survey and history courses are recommended.

Business and Management

Admission to the College of Business and Management is generally limited to students who enroll as juniors.

To be eligible for admission to the college in the junior year, students must satisfy the current competitive GPA, have completed 56 semester hours, and have completed the necessary coursework, including six hours each of Accounting and Economics, and three hours each of Calculus, Statistics, and Speech.

Computer Science

Admission to the Department of Computer Science is competitive. A small number of academically talented, entering freshmen will be offered admission, however, admission is generally limited to students who have met the following requirements:

a. Successful completion of CMSC 112, CMSC 113, MATH 140 and 141, and
b. Completion of a minimum of 28 college credits, and
c. Achievement of a grade point average that meets the competitive requirements in effect for the semester of anticipated enrollment in the department.

Information on the current GPA requirements may be obtained from the Office of Undergraduate Admissions.

A few potentially qualified students who are unable to meet these criteria will be considered on a case-by-case basis by a special committee within the department.

Applicants to the Department of Computer Science, who are eligible for admission to College Park but who do not meet the department's selective admission requirements, will be offered admission to the University as pre-computer science majors. Designation as a pre-computer science major does not assure eventual admission to the Department of Computer Science.

Because of space limitations, College Park may not be able to offer admission to all qualified applicants. Interested students are urged to apply early.

Consumer Economics

Direct enrollment in Consumer Economics will be limited to a relatively few highly qualified entering freshmen. A small number of qualified freshmen are admitted if they have a 2.6 cumulative grade point average in high school academic subjects and a combined SAT score of at least 1200. Students will also be admitted to the College if they are National Merit finalists, semi-finalists, and commended, National Achievement finalists, semi-finalists, and commended, Francis Scott Key Scholars, Banneker Scholars or Maryland Distinguished Scholars, finalists, semi-finalists and honorable mention. Transfer students wishing to major in Consumer Economics will encounter additional course requirements and should contact the Office of Undergraduate Admissions.

Economics

Direct enrollment in Economics is limited to a small number of academically talented freshmen. Generally, students are admitted who meet the following requirements:

a. Completion of 56 credits with a minimum cumulative grade point average of 2.6. (The grade point average is reviewed each semester and is subject to change.)
b. Completion of three required courses with a grade of "C" or better in each: ECON 201 (Macro-Econ), ECON 203 (Micro-Econ) and MATH 220 (Elementary Calculus I).

Engineering

The College of Engineering admits a larger number of qualified freshmen than the other programs described in this section. Still, enrollment is limited and competition for available openings is stiff, especially in Electrical Engineering. All applications will be reviewed on a *space-available* basis.

Freshmen will be considered on the basis of their academic grade point average and SAT score. Particular emphasis is placed on the mathematics section of the SAT. The requirements for direct admission to Electrical Engineering are more stringent than for other engineering majors.

All transfer students, as well as students presently enrolled at College Park, must meet the competitive grade point average (currently 3.0) in effect for the semester during which the student anticipates initial enrollment. In addition, applicants must have completed at least twenty-eight semester hours including eight hours each of calculus and chemistry and three hours of physics. Engineering science and statics are also strongly recommended.

Transfer students wishing to major in Electrical Engineering will encounter additional course requirements and a higher GPA requirement. Prospective applicants to this major should contact the Office of Undergraduate Admissions (301-454-4009) or the Student Affairs Office in the College of Engineering (301-454-2421) for details.

Housing and Design

A change in admissions criteria for the Design major is currently under consideration. Students should check with the department for the latest information on the status of this proposed change.

Admission to the programs of Interior Design and Advertising Design is competitive. A small number of academically talented, entering freshmen will be admitted to these programs. To be admitted, a freshman must have a 3.00 high school grade point average and a combined SAT score of 1200 or above, or be a National Merit and National Achievement Scholarship finalist or semifinalist, or be a recipient of a President's Scholarship, Benjamin Banneker Scholarship, or a Maryland Distinguished Scholar Award.

Admission to these programs is generally limited to students who will enroll at the sophomore level and who have met the following requirements:

a. Completion of a minimum of twenty-nine college credits, and
b. Successful completion of four required courses (APDS 101A, APDS 102, APDS 103, and EDIT 160), and
c. Submission of a Design Work Portfolio for review. Students with a grade of B or higher in each of the four required courses are exempt from the portfolio requirement.

All transfer students must submit a Design Work Portfolio. A portfolio may be submitted to the department at the time of application for admission to the University or later, but no later than the application deadline set by the department.

Potentially talented students who are unable to meet the above criteria may be admitted after special review by the department.

Eligible applicants who do not meet the selective admissions requirements for the programs of interior design and advertising design will be offered admission as pre-design majors. While this designation does not assure eventual admission to the design major, pre-design students will be given preferential treatment when registering for departmental courses in which there is an enrollment limitation.

Journalism

Admission to the College of Journalism is competitive, and generally limited to students who enroll as sophomores. A small number of academically talented freshmen will be admitted directly into the College if they have a 3.00 cumulative grade point average in high school academic subjects *and* a combined SAT score of at least 1200. Students will also be admitted to the College if they are National Merit finalists, semi-finalists, and commended, National Achievement finalists, semi-finalists and commended, President's Scholars, Banneker Scholars, or Maryland Distinguished Scholars, finalists, semi-finalists and honorable mention.

To qualify for provisional admission as a sophomore, students must:

a. complete at least twenty-eight credits and achieve a cumulative grade point average that meets the competitive requirements in effect for the semester of anticipated enrollment in the College. While the College has decided that the grade point average will be at least 2.30, the GPA to date has not been lower than 2.7.
b. complete ENGL 101 or its equivalent with at least a grade of C (unless students are exempt from ENGL 101), and
c. complete satisfactorily a standardized test of grammar.

To qualify for full admission to the major, students must:

a. complete JOUR 201 with a grade of C or better. 30 wpm typing ability is required for this course) and
b. maintain at least the same cumulative grade point average required when they received provisional admission.

Students whose applications for provisional or full admission have been rejected may appeal in writing to a faculty committee within the College of Journalism. The same committee will also consider, on a case-by-case basis, applications from a few potentially qualified students who do not meet the above criteria but who show other evidence of ability.

Transfer students will be treated in the same way as native students. However, if they have completed the equivalent of JOUR 201 at an institution not included by ACEJMC a special proficiency exam will be required for admission to the major.

Radio-Television-Film

The Department of Radio-Television-Film admits a limited number of academically talented freshmen. Generally, enrollment is limited to students who have completed:

a. at least twenty-eight credits with a minimum grade point average of 2.6 (GPA requirement is reviewed each semester and is subject to change), and
b. three required courses with a grade of C or better in each; ENGL 101 (Introduction to Writing), MATH 110 (Introduction to Mathematics) and RTVF 222 (Introduction to Radio-Television-Film).

Special Education

Admission to the Department of Special Education is generally limited to students who enroll as sophomores.

To be eligible for admission, currently enrolled College Park students must have a 2.0 grade point average and have completed approximately thirty credit hours, including the following: introductory psychology, sociology, statistics, mathematics, hearing and speech sciences, and six hours of specified education courses. A minimum grade of C in EDSP 210 is required.

Applicants must submit an application specific for the selective admissions program and each will be reviewed on the basis of academic record,

experiences with handicapped persons, and the appropriateness and clarity of a professional goal statement. An appeals process has been established for students who do not meet the competitive grade point average for admission but who are applying in connection with special University programs such as affirmative action or selection for academic promise.

Transfer students from Maryland community colleges or Northern Virginia Community College should contact their transfer coordinator for specific information. All other students should contact the Department of Special Education.

Teacher Education

Pre-education majors apply for admission to teacher education through the University of Maryland College Park (UMCP) Office of Undergraduate Admissions (OUA) upon the completion of forty-five semester hours of credit. Transfer students with forty-five or more semester hours of acceptable credit must apply at time of transfer. Post-graduate certification students must apply at the beginning of their program. Application forms may be obtained from the OUA.

For admission into a teacher education program, a student must (1) complete the USP Fundamental Studies requirements (six credits); (2) earn forty-five semester hours with an overall cumulative grade point average of at least 2.5 on a 4.0 scale (granted by UMCP or other institution) in all coursework prior to enrollment in EDHD 300; and (3) have satisfactory scores on the language and mathematics segments of the California Achievement Test Level 20. Individuals who do not initially meet the criteria for admission to teacher education will be given an additional semester in which to become eligible. During that semester the student will follow a plan for attaining eligibility developed by the student and the department advisor. New requirements for the elementary education teacher preparation programs have been adopted. For further information, please contact the College of Education.

Special Applicants

Minority Students

In keeping with the University Affirmative Action Program, special consideration will be given to minority students who demonstrate the potential for academic success. Minority students are urged to contact both an admissions counselor and the Office of Minority Student Education.

Returning Students and Veterans

Maryland residents who have not attended school for more than five years, or who have had military experience, may find that the published standards for freshman and transfer admissions do not apply to their situation. To discuss educational plans, returning students and veterans should contact both an admissions counselor and the Returning Students Program.

Students returning to the College Park Campus after a separation of five calendar years may petition their appropriate dean to have a number of grades and credits from courses previously taken at College Park removed from the calculation of their cumulative grade point averages and from the credits applied toward graduation requirements. For more information, consult the section on Academic Regulations and Requirements.

International Students

General Requirements. The University of Maryland values the contribution international students make to the College Park community. Therefore, applications from the international community are welcomed. However, due to the differences between foreign educational systems and education in the United States, international students will face a number of challenges in adapting to study at the University. Students who have received, throughout their secondary school and university level work, marks or examination results considered to be "very good" to "excellent" are those who are most likely to succeed at our institution. Admission for international students is competitive and offered only to those who are considered by the University to be better than average in their own educational setting. Students also have to demonstrate, in their secondary level studies, that they have successfully completed a diversity of subjects representing language, mathematics, physical or biological science and social sciences. Because of the keen competition at the University of Maryland, we suggest applicants apply early.

Those who will hold the following visa types, A, E, F, G, H, I, J, and L, will be admitted on the basis of their academic backgrounds and must present records with marks of "very good" to "excellent." However, non-immigrants, other than F or J visa holders, who have completed four years of U.S. secondary education (grades 9 through 12), will be evaluated on the same basis as U.S. Citizens and Permanent Residents/Immigrants. International applicants who present one full year of acceptable university level credit will be considered for admission as transfer students. Those with less than one full year of acceptable credit must also meet the freshman admission requirements for international applicants.

International students applying for admission to undergraduate programs at the University of Maryland must submit: (1) an application and fee for admission; (2) copies of official secondary school records (including any secondary external examinations, such as the G.C.E. "Ordinary" level examinations, or the Baccalaureat); (3) transcripts of any university level studies completed in the United States or elsewhere. Original documents written in a language other than English must be accompanied by certified English translations.

International students who have completed grades 10, 11, and 12 in a U.S. high school must also take the Scholastic Aptitude Test (SAT) and submit the results. All freshman applicants to the College of Engineering, regardless of where they have studied, must present SAT scores. Admission to selective majors (see "Admissions to Selective Majors" for identification of these majors) requires international students to have marks of no less than "excellent" in previous education in order to be considered for admission into the selective major.

International students on F-1 Student visas accepted for admission to the University will receive the I-20 form from the Office of International Education Services (IES); this form is needed to secure, transfer, and extend the Student visa after applicants have certified their financial support and submitted evidence of satisfactory English proficiency to the IES Office.

International students accepted for admission will be expected to plan their arrival sufficiently in advance of the registration period to secure housing and attend the special orientation program for international students that is held the week prior to registration.

English Proficiency. All applicants must demonstrate a satisfactory level of English proficiency. Such proficiency is necessary to pursue a full course of study at the University of Maryland at College Park. All non-native speakers of English must submit a score report from the Test of English as a Foreign Language (TOEFL) during the application process. Non-native speakers who have received a degree from a tertiary level institution in the U.S., English-speaking Canada, United Kingdom, Ireland, Australia, New Zealand, or Commonwealth Caribbean are exempt from the TOEFL requirement. Native speakers of English are defined as those educated entirely in the U.S., English-speaking Canada, United Kingdom, Ireland, Australia, New Zealand, or Commonwealth Caribbean. Applicants who are unsure as to whether or not they need to take the TOEFL should contact the Office of International Education Services. Non-native speakers of English who have graduated from U.S. high schools must submit TOEFL examination results. For information and a TOEFL application brochure, write to: TOEFL, Box 2896, Princeton, N.J. 08540.

Application Deadlines

1. Those applicants who would be studying under F (Student) or J (Exchange Visitor) visas must meet the following application deadlines:

   Fall semester—March 1
   Spring semester—August 1

2. Non-Immigrants (A, E, G, H, I, L visas) must have complete applications submitted by the following deadlines (complete applications include all academic records and transcripts for work completed, and TOEFL scores if the applicant is a non-native speaker of English):

   Fall semester—March 1
   Spring semester—August 1

3. *All applicants* must submit all foreign educational credentials, and certified English translations of such records in languages other than English at least three months in advance of the first day of classes to be given full consideration for admission.

Return of Foreign Records. Transcripts (records, marksheets) of applicants with foreign credentials are maintained by the Office of Undergraduate Admissions for two years. If these documents are original copies, the student must request their return within two years of application. At the end of this period, the records are destroyed.

Immigrant Students

Immigrant applicants for admission at the undergraduate level are admissible under the same guidelines as U.S. citizens EXCEPT that applicants, including transfer applicants, whose native language is other than English must *ALSO* demonstrate a satisfactory level of English proficiency to pursue an approved course of study.

Non-Degree (Special) Students

Applicants who qualify for admission but do not desire to work toward a baccalaureate degree may be admitted as non-degree seeking (special) students.

Special students who have received a baccalaureate degree are advised that no credit earned while enrolled as special students may be applied at a later date to a graduate program. These post baccalaureate students may enroll in undergraduate courses for which they possess the necessary prerequisites, but may not enroll in courses restricted to graduate students only. Students who wish to take courses at the graduate level (600 and above) must contact the Graduate School for information concerning admission requirements for Advanced Special Student status.

Non-degree seeking (special) students who do not have a baccalaureate degree must submit transcripts and meet regular admission standards. Transcripts are not required from students with baccalaureate degrees.

Because of space limitation, several departments require permission be given in advance to enroll as a non-degree student. Please contact the Office of Undergraduate Admissions for further information.

Preprofessional Programs and Options

The University of Maryland at College Park offers preprofessional advising in Dental Hygiene, Dentistry, Law, Medical Technology, Medicine, Nursing, Optometry, Osteopathy, Pharmacy, Physical Therapy, Podiatry, and Veterinary Medicine. This advising will guide the student to the best preparation for advanced study and training in these fields. For additional information, see the section on Campus-wide Programs in this catalog.

Participation in a preprofessional program at College Park does not guarantee admission to another branch of the University or to another institution.

The Radiologic Technology program previously offered at the University of Maryland at Baltimore (UMAB) is no longer available. Students choosing the preprofessional program in this field will receive training that should prepare them for transfer to other institutions.

Students who have already earned more than thirty semester hours at another college-level institution, and who seek admission to preprofessional programs in Nursing, Pharmacy, Dental Hygiene, Physical Therapy and Medical Technology, should contact the academic advisor for the preprofessional programs at College Park before filing an application for College Park. Please address correspondence to the academic advisor of the specific preprofessional program to which you are applying; for example, Advisor for Pre-Nursing Program, 3103 Turner Bldg., University of Maryland, College Park, MD 20742.

Golden Identification Card Program.

College Park participates in the University of Maryland's Golden Identification Card Program. The institution will make available courses and various services to persons who are 60 years of age or older, who are legal residents of the State of Maryland, and who are retired (not engaged in gainful employment for more than 20 hours per week); or who are under 50 years of age and are retired under a bona fide pension plan and disabled as defined by the Social Security or Railroad Retirement Act. When persons eligible for this Program are admitted to the University, they register on a space-available basis for credit courses a regular or special students in any session, and receive a Golden Identificationcard. Golden ID students must meet all course pre-requisite and co-requisite requirements. Golden ID students are not eligible for Consortium courses with the waiver of fees. College Park tuition and most other fees are waived. Golden ID students may register for a maximum of three credits per term. The Golden Identification Card will entitle eligible persons to certain academic services, including the use of the libraries, as well as certain other non-academic services. Such services will be available during any session only to persons who have registered for one or more courses for that session. Golden ID students also have the opportunity to become involved with the Golden ID Student Association which provides cultural and social events, course recommendations, and peer advising. Additional information may be obtained from the Office of Undergraduate Admissions, Mitchell Building, 454-5550, or the Golden ID Student Program, Room 0119 Hornbake Library, 454-4767.

Graduate Student Admission

Those who have earned or will earn a bachelor's degree at a regionally accredited college or university in the United States, or the equivalent of this degree (as determined by UMCP) in another country will be considered for admission to the Graduate School at UMCP. Criteria are listed in the Graduate School's Application Brochure obtainable from the Graduate School. Requests for information about graduate programs or correspondence concerning application for admission to The Graduate School, College Park should be addressed to the Admissions Office, The University of Maryland Graduate School, South Administration Building, College Park, MD 20742.

Orientation Programs

Upon final admission to the University the new student will receive materials about the Orientation and Registration Program. This program is offered by the Orientation Office, and all entering students are encouraged to attend. The primary goals of the program are to inform the student about the University and to help the student register for the first semester. Through this program the entering student receives a personalized and individual introduction to the University plus individual advising concerning course selection for the first semester. During this Orientation Program, new students register for courses for their initial semester on campus.

Parents also have an opportunity to learn about University life through the Parent Orientation Program. More information about this program may be found under "Orientation," elsewhere in this catalog.

For more information, contact the Orientation Office, 1195 Stamp Student Union, telephone: (301) 454-5752.

Determination of In-State Status for Admission, Tuition, and Charge Differential Purposes

An initial determination of in-state status for admission, tuition, and charge-differential purposes will be made by the University at the time a student's application for admission is under consideration. The determination made at that time, and any determination made thereafter shall prevail in each semester until the determination is successfully challenged. Students may challenge their classification by submitting a *petition*. Petitions are available in the Office of Undergraduate Admissions. *The deadline for meeting all requirements for in-state status and for submitting all documents for reclassification is the last day of late registration for the semester if the student wishes to be classified as an in-state student.*

The volume of requests for reclassification may necessitate a delay in completing the review process. It is hoped that a decision in each case will be made within ninety days of receipt of a request for redetermination and all necessary documentation. During this period of time, or any further period of time required by the University, fees and charges based on the previous determination must be paid. If the determination is changed, any excess fees and charges will be refunded.

Petitions, related documents and questions concerning the policy of the University of Maryland for the determination of in-state status should be directed to the Campus Classification Office, Francis Scott Key Hall, Room 1116, the University of Maryland, College Park, MD 20742; Phone (301) 454-3977.

Students Classified as In-State for Admission, Tuition, and Charge-Differential Purposes. Students classified as in-state for admission, tuition, and charge-differential purposes are responsible for notifying the Office of Undergraduate Admissions in writing within fifteen days of any change in their circumstances what might in any way affect their classification at the College Park Campus.

The written notice of change in circumstances or questions concerning the policy of the University of Maryland for the determination of in-state status should be directed to Office of Undergraduate Admissions, Ground Floor, Mitchell Building.

3 Fees, Expenses, and Financial Aid

FEES AND EXPENSES

Student Accounts Office,
1103 Lee Building, 454-4832

Tuition and fees for the University of Maryland at College Park are listed below. The University requires that all deposits and fees be paid by stated deadlines, or penalties must be imposed. Many potential administrative difficulties can be avoided if students carefully follow published procedures and notify the appropriate office(s) of any changes that might affect their financial obligation to the University. This includes notifying the University of changes of address, so that mail affecting the student's financial relationship with the University will not be delayed or returned.

The University of Maryland does not have a deferred payment plan. Charges incurred during a semester are payable immediately. Returning students will not be permitted to complete registration until all financial obligations to the University including library fines, parking violations, and other penalty fees and service charges are paid in full.

Payment for past due balances and current semester fees are due on or before the first day of classes. Students who register in advance must pay their bills in full prior to the general registration period. Students who register after the initial registration period are required to make full payment by the close of business the following working day to avoid cancellation of their enrollment and loss of their classroom seats to other students.

It is the policy of the University not to defer payment on the basis of a pending application for financial assistance to an outside agency, including Veterans Administration benefits, bank loans, Stafford student loan programs, etc.

Although the University regularly mails bills to students, it cannot assume responsibility for their receipt. Students are reminded that it is their responsibility to notify the University of any change in address, or to correct an address. If a student bill is not received on or before the beginning of each semester, it is the student's responsibility to obtain a copy of the bill at Room 1103, Lee Building, between the hours of 8:30 a.m. and 4:15 p.m., Monday through Friday.

All checks or money orders should be made payable to the **University of Maryland** for the exact amount due. **Student name and student Social Security number should be written on the front side of the check.** University grants, scholarships, or workship awards will be deducted on the bill, which is mailed approximately one month after the start of the semester. However, the first bill mailed prior to the beginning of each semester may not include these deductions.

Students are urged to check their residence hall and dining service agreements for procedures for cancellation of reservations, and for deadlines for receiving refunds of deposits. Refunds cannot be made after these deadlines, even if the student decides not to attend College Park.

Students will be severed from University services and incur a late payment fee in the event of failure to pay a balance on their student account by its due date. In the event that severance occurs, the individual may make payment during the semester in which services were severed and services will be restored. **A $25.00 severance fee and a late payment fee of $5.00 or 5%,** whichever is higher, will be assessed in addition to payment for the total past due amount.

Students removed from housing because of delinquent indebtedness will be required to reapply for housing after they have satisfied their financial obligation. Students who are severed from University services and who fail to pay the indebtedness during the semester in which severance occurs will be ineligible to preregister for subsequent semesters until the debt and the penalty fees are cleared.

In the event of actual registration for a subsequent semester by a severed student who has not settled his or her student account prior to that semester, such registration will be cancelled and no credit will be earned for the semester.

The State has established, under legislative mandate, a Central Collections Unit (CCU) within the Department of Budget and Fiscal Planning. The University is required by State Law to refer all delinquent accounts to the State Collections Unit. Please note that Maryland law allows the Central Collections Unit to intercept state income tax refunds for individuals with delinquent accounts, and that failure to make timely payment in response to CCU collection efforts may impair a credit rating.

All Accounts Due from Students, Faculty, Staff, Non-Students, etc., are included within these Guidelines.

Collection costs incurred in collecting delinquent accounts will be charged to the student. The minimum collection fee is 15% plus attorney and/or court costs.

No degree, grades, diploma, certificate, or transcript of record will be issued to a student who has not made satisfactory settlement of his or her account.

An Important Fee Notice. Although changes in fees and charges ordinarily will be announced in advance, the University reserves the right to make such changes without prior announcement.

NOTE: Additional Information on Student Financial Obligations, Disclosure of Information, Delinquent Accounts, and Special Fees, can be found on page 2.

A. UNDERGRADUATE FEES

1. Full-time Undergraduate Students 1989-90 Academic Year

a. Maryland Residents

	Total Academic Year Cost
Tuition	$1,714.00
Registration Fee	10.00
Mandatory Fees (see Explanation of Fees below)	373.00
Board Contract (FY 88-89)*	
1) 7 Point Plan	1,784.00
Lodging (FY 88-89)*	2,194.00

b. Residents of the District of Columbia, other states, and other countries:

	Total Academic Year Cost
Tuition	5,371.00
Registration Fee	10.00
Mandatory Fees (see Explanation of Fees below)	373.00
Board Contract (FY88-89)*	
1) 7 Point Plan	1,784.00
Lodging (FY88-89)*	2,194.00

*Increases in board and lodging for 1989-90 are under consideration by the Board of Regents at the time of this printing.

2. Fees for Part-Time Undergraduate Students

Tuition (per credit hour)	$99.00
Registration Fee (per semester)	5.00
Mandatory Fees (per semester)	88.50

Note: The term "part-time undergraduate student" is interpreted to mean an undergraduate student taking eight semester credit hours or less. Students carrying nine semester hours or more are considered to be full-time and must pay the regular full-time fees.

B. GRADUATE FEES

1 Maryland Residents (fee per credit hour)	117.00
2 Residents of the District of Columbia, other states other countries (fee per credit hour)	207.00
3 Registration Fee (per semester)	5.00
4 Mandatory Fees (per semester)	
Full-time (9 or more credit hours per semester)	108.00
Part-time (8 or less credit hours per semester)	80.00

EXPLANATION OF FEES

Mandatory Fees

The Registration Fee (Non-Refundable): The Registration Fee is charged to all registrants each semester.

The Instructional Materials Fee (Refundable): Charged to all students for instructional materials and/or laboratory supplies furnished to students.

The Student Activities Fee (Refundable): Charged to all undergraduate students at the request of the Student Government Association. It is used in sponsoring various student activities, student publications, and cultural programs.

The Auxiliary Facilities Fee (Refundable): Charged to all students. This fee is paid into a fund that is used for capital improvement, expansion, and construction of various campus facilities such as open recreation areas (tennis courts, basketball courts, etc.), transportation alternatives (shuttle buses), and the Stamp Student Union. These capital projects are not funded or are funded only in part from other sources.

The Athletic Fee (Non-Refundable): Charged to all students for the support of the Department of Intercollegiate Athletics. All students are encouraged to participate in all of the activities of this department, or to attend the contests if they do not participate.

The Student Health Fee (Non-Refundable): Charged to all students for the support of the Health Service facility.

The Shuttle Bus Fee (Non-Refundable): Charged to all students for the support of the Shuttle Bus transportation system.

The Stamp Student Union and Recreational Fee (Non-Refundable): Charged to all students and is used to expand recreational facilities and Stamp Student Union services.

Other Fees

Payment of Fees: All checks, money orders, or postal notes should be made payable to the **University of Maryland.** *The student's Social Security number must be written on the front of the check.* VISA and MasterCard credit cards are accepted.

The Application Fee (Non-Refundable): $25.00. Charged to all new undergraduate students.

Enrollment Confirmation Deposit (Non-Refundable): $100.00. All newly accepted undergraduate students who intend to matriculate in the fall or spring semester must submit a $100 fee which is credited to their tuition charges when they enroll. Should the student decide not to enroll for the specific semester of application the $100 fee is forfeited, and cannot be used to offset any charges the student may incur.

Students admitted for the fall term by April 1 must submit this deposit by May 1; students admitted for the spring term prior to December 1 must submit this deposit within 30 days. Students admitted after December 1 for the spring term must submit this deposit within 14 days.

Pre-College Orientation Program Registration Fee:
$72.00 (two-day program)
$50.00 (one-day program)
$25.00 (one parent) $50.00 (two parents)

Late Registration Fee: $20.00. All students are expected to complete their registration including the filing of Schedule Adjustment Forms on the regular registration days. Those who do not complete their registration during the prescribed days must pay this fee.

Special Fee for students requiring additional preparation in mathematics (MATH 001) per semester: $130.00. (Required of students whose curriculum calls for MATH 110 or 115 and who do not pass the qualifying examination for these courses.) This Special Math Fee is in addition to course charge. Students enrolled in this course and concurrently enrolled for six or more credit hours will be considered as full-time students for purposes of assessing fees. Students taking only MATH 001 pay for three credits plus $130.00. A three-credit course plus MATH 001 results in a charge for 6 credits plus $130.00. A full-time student pays full-time fees plus $130.00. This course does not carry credit towards any degree at the University.

Special Fee for students requiring additional preparation in Chemistry (CHEM 001) per semester: $100.00. CHEM 001 is recommended for students who do not qualify for MATH 110 or higher, or who have no high school chemistry and must take CHEM 103. This course does not carry credit towards any degree at the University. This Special Chemistry Fee is in addition to course charge.

Cooperative Education in Liberal Arts, Business and Science (CO-OP 098-099) per semester: $65.00

Engineering COOP Program (ENCO 098-099) per semester: $65.00

Fees for Auditors and courses taken for audit are the same as those charged for courses taken for credit at both the undergraduate and graduate levels. Audited credit hours will be added to hours taken for credit to determine full-time or part-time status for fee assessment purposes. Special Students are assessed fees in accordance with the schedule for the comparable undergraduate or graduate classification.

Change of Registration Fee: $2.00 for each course dropped or added after the schedule adjustment period. A $4.00 fee is charged for each section change ($2.00 for the section added, $2.00 for the section dropped) after the schedule adjustment period.

Graduation Application Fee for Bachelor's Degree: $20.00. The Graduation Application Fee is a one-time, non-refundable charge. If a subsequent application is submitted for the same degree, the fee will not be charged a second time.

Special Examination Fee (Credit-by-Exam): $30.00 per course for all undergraduates and full-time graduate students; credit-hour charge for part-time graduate students.

Vehicle Registration Fees: Vehicles must be registered each academic year by all students enrolled for classes on the College Park Campus and who drive or park a vehicle **anywhere or anytime** on the campus. For additional information, please refer to the entry for Department of Campus Parking in Chapter 4 of this catalog.

Textbooks and Supplies: Textbooks and classroom supplies vary with the course pursued, but will average $450.00 per year (2 semesters).

Service Charges for Dishonored Checks: Payable for each check which is returned unpaid by the drawee bank on initial presentation because of insufficient funds, payment stopped, post-dating, drawn against uncollected items, etc.

For checks up to $100.00: $10.00
For checks from $100.01 to $500.00: $25.00
For checks over $500.00: $50.00

When a check is returned unpaid, the student must redeem the check and pay any outstanding balance in the account within 10 days or all University services may be severed and the account transferred to the State Central Collection Unit for legal follow-up. Additionally, a minimum 15 percent collection charge is added to the charges posted to the student's account at the time the transfer is made. When a check is returned unpaid due to an error made by the student's bank, the student must obtain a letter from the branch manager of the bank or a person of equivalent status admitting the error. This letter must be submitted to the Office of the Bursar to have the service charged waived.

Library Charges: Fine for failure to return a book from General Library before expiration of loan period - $.35 per day. Fine for failure to return book from Reserve Shelf before expiration of loan period - first hour overdue on first day: $1.50, after first hour on first day: $.75 per hour for each hour open up to a maximum of $45.00 per item. In case of loss or mutilation of a book, satisfactory restitution must be made.

Maryland English Institute Fee: Semi-intensive, $1,174.00: Intensive, $2,347.00: Students enrolled with the Maryland English Institute pay this fee in support of the Institute. Students enrolled in the semi-intensive program may also enroll for regular academic courses and pay the tuition and fees associated with those offerings. The program also offers non-credit courses: English Pronunciation, $180.00, and Workshop for Foreign Teaching Assistants, $180.00.

Property Damage Charge: Students will be charged for damage to property or equipment. Where responsibility for the damage can be fixed, the individual student will be billed for it; where responsibility cannot be fixed, the cost of repairing the damage or replacing equipment will be prorated among the individuals involved.

Late Payment Fee: Students who fail to pay the balance due on their accounts are subject to a late fee of 5% of the outstanding balance or $5.00, whichever is greater.

Severance of Services Fee: $25.00. Students who fail to pay the balance due on their accounts will have their University services severed and will be required to pay the total amount due plus a $25.00 severance fee.

Withdrawal or Refund Fees: Any student compelled to leave the University at any time during the academic year should secure a form for withdrawal from the Records and Registrations Office. The completed form and the semester Identification/Registration Card are to be submitted to the Records and Registrations Office. The student will forfeit his or her right to refund if the withdrawal action described above is not adhered to. The effective date used in computing refunds is the date the withdrawal form is filed in the Records and Registrations Office. Stop Payment on a check,

failure to pay the semester bill, failure to attend classes, does not constitute withdrawal A request for a refund must be processed by the student with the Office of the Bursar; otherwise any credit on the student account will automatically be carried over to the next semester

Cancellation of Registration - Submitted to the Withdrawal/Reenrollment Office before the official first day of classes entitles the student to a full credit of semester tuition.

Undergraduate students withdrawing from the University will be credited for tuition in accordance with the following schedule:

Prior to classes beginning	100%
After Classes begin:	
Between one and two weeks	80%
Between two and three weeks	60%
Between three and four weeks	40%
Between four and five weeks	20%
Over five weeks	No Refund

Prior to the first day of classes, if a full-time undergraduate student drops a course or courses, thereby changing the total number of credits for which the student is preregistered to eight or less, charges for the semester will be assessed on the basis of the per credit hour fee for part-time students However, if the student later adds a course or courses thereby changing the total number of credits for which the student is registered to nine or more, the student will be billed for the difference between per credit hour fees paid and the general fees for full-time undergraduates.

If during the **first five days of classes** a full-time undergraduate drops a course or courses thereby changing the total number of credits for which he/she is registered to eight or less, charges for the semester will be assessed on the basis of part-time charges plus 20 percent of the difference between the full-time fees and appropriate part-time charges. After the first five days of classes, there is no refund for changing from full-time to part-time status.

A student who registers as a part-time undergraduate student and **applies** for a refund for courses dropped during the first week of classes will be given a refund. No refund will be made for courses dropped thereafter

No part of the charges for room and board is refundable except when the student officially withdraws from the University or when he or she is given permission by the appropriate officials of the University to move from the residence halls and/or to discontinue dining hall privileges. In these cases, the room refund will be computed by multiplying the number of periods remaining times the pro rata weekly rate after adjusting for a service charge. Refunds to students having full board contracts will be calculated in a similar manner. No room and/or board refunds will be made after the fourteenth week of the semester. Students are reminded that reservations for room and board must be cancelled by the date published in the residence hall and dining services agreement(s).

In computing refunds to students who have received the benefit of scholarships and loans from University funds, the computation will be made to return the maximum amount to the scholarship and loan accounts without loss to the University.

FINANCIAL AID

Office of Student Financial Aid
2130 Mitchell Building, 454-3046

Applying for financial aid, receiving financial aid, and keeping your financial aid do not happen automatically.

YOU HAVE TO MAKE IT HAPPEN!

The Office of Student Financial Aid (OSFA) provides advice and assistance in the formulation of student financial plans and, in cooperation with other University offices, participates in the awarding of scholarships and grants to deserving students The primary responsibility of financing attendance at the University of Maryland at College Park lies with the student and the family Scholarships, grants, loans, and work-study positions are awarded on the basis of academic ability and financial need determined by a federal needs analysis system. It is the intent of the committee on Financial Aid to provide awards to those qualified students who might not otherwise be able to pursue college studies

Financial aid funds are limited, therefore, all new, readmitted, and returning students must follow these steps to receive priority consideration for financial aid

1 Submit admissions applications and all necessary supporting documents to the Office of Admission by the appropriate deadlines

2 Complete a Financial Aid Form (FAF) after January 1 FAF forms are available from OSFA

New students should not wait to be admitted before filing the FAF. A financial aid application has no bearing on a student s admission application However, a student will not receive final consideration for aid until he or she is admitted to a degree program

3 Mail the form to the College Scholarship Service no later than *January 15,* so that the Service's analysis of the FAF is received in the Office of Student Financial Aid by *February 15.* **Income for the previous year may be estimated initially, and corrected later on the Student Aid Report.**

Applications received after February 15, 1989 will be reviewed after on-time applications in order of receipt as long as funds are available

All transfer and new graduate students must provide a financial aid transcript from all post-secondary schools attended, **whether aid was received or not.**

General Regulations Applicable to All Forms of Aid

Full-time Status. For most types of aid, students must register for and maintain at least 12 credit hours each semester in order to receive the full financial aid award and maintain that award

Citizenship Status. Students must be United States citizens or eligible non-citizens in order to be eligible for Federal State, or University financial assistance

Default/Owe Refund. To receive Federal financial aid, you cannot be in default on an educational loan, nor can you owe any refund on a Pell Grant or Supplemental Educational Opportunity Grant (SEOG) previously awarded at any post-secondary institution

Degree Seeking. To receive Federal financial aid, you must be working toward a degree or certificate

Satisfactory Progress. To receive Federal financial aid, you must be making satisfactory progress toward a degree or certificate according to the Standards for Satisfactory Academic Progress printed at the end of this chapter

Selective Service. To receive Federal financial aid, you must be registered with Selective Service if you are a male who is at least 18 years old and born after December 31, 1959, unless you are not required to be registered. Compliance with the registration requirement will be verified by the Federal Government The names of those students whose status cannot be verified will be referred to the U S Department of Justice for possible prosecution.

Receiving a Non-University Award. If you receive assistance (scholarship or loan) from a non-University source, the University will normally reduce the financial aid awarded by the University It is the student's responsibility to notify the Director of Financial Aid of all outside awards. Unless otherwise directed by the donor, outside non-University awards will be credited to your account, one half each semester of the academic year

Change in Financial Situation. It is your responsibility to notify the Office of Student Financial Aid of any changes in your financial situation during the year

Reapplication Requirement. No form of assistance is automatically renewed from year to year All students requesting aid must reapply by submitting a new FAF annually Such reapplication must indicate continued financial need as well as Satisfactory Academic Progress

Award Policy. Financial aid is normally a combination of grant funds, loan funds, and employment The financial aid "package" is determined by the availability of the various types of financial aid and the individual circumstances of the students It is not necessary to make any special application for University grants The Office of Student Financial Aid will determine awards which best fit the needs and qualifications of the candidates.

Estimating Educational Cost

A budget of average educational costs is used in determining how much aid a student is awarded during the academic year The typical budget for an in-state undergraduate at the University of Maryland for the 1988-89 academic year was as follows

Dependent Student Living on Campus

Tuition (in-state)	$1906 00	out-of-state	$5292 00
Room	2194 00		
Board	1784 00		
Incidentals	1400 00		
Books	365 00		
Travel	0 00		
	$7649 00		$11 035 00

Notes: 1. The above budget is subject to change for the 1989-90 academic year
2 To determine 1989-90 budget, add approximately 4%-5% to costs

MERIT-BASED FINANCIAL ASSISTANCE

Scholarships

There is an increasing number of merit-based scholarships available to academically talented students attending the University of Maryland at College Park. The following is a list of such awards, several of which are dependent upon a particular major, academic standing, and/or in some cases, financial need, as determined by the Financial Aid Form (FAF) Individual students applying for Merit awards may be eligible for more than one of these scholarships For more information about these awards, the student is encouraged to contact the department or office responsible for the selection.

Benjamin Banneker Scholarship. Merit awards are available to academically talented black students Awards are made to entering freshmen and are renewable for up to four years of undergraduate study. The award provides funds to cover full-time, in-state tuition and fees December 1 is the deadline for receipt of both the application for admission and awards Automatic consideration is given to all National Achievement Finalists. Banneker Scholars are also admitted to the General Honors Program if they choose to participate. Contact Office of Admissions. Awards are made in March or early April.

Full University Scholarship. This four-year award covers the recipient's room, board, tuition, and mandatory fees charged at UMCP. Those eligible for consideration must be incoming freshmen with a grade point average of 3.5 or better, combined SAT scores of 1100 or higher, and must demonstrate extreme need as determined by the Financial Aid Form (FAF) and the Office of Student Financial Aid. Approximately 15 Full Scholarships are awarded each year. Candidates will be selected from among those eligible freshmen who are admitted by March 1st Contact Office of Student Financial Aid. Awards are made in early April.

Francis Scott Key Scholars Program. Scholarships, renewable for four years of undergraduate study, are awarded on the basis of merit to incoming freshmen. The awardees are known as Key Scholars. The awards provide funds to cover full-time, in-state tuition and fees. In addition, Key Scholars receive preferential housing Recipients are designated by the President upon the recommendation of a committee which screens nominations submitted by high school guidance counselors and administrators of the University. For consideration, students must submit an application for admission to the University and be nominated for this award by December 1st. Automatic consideration is given to all National Merit Finalists and Semi-Finalists, all Distinguished Scholar Finalists and Semi-Finalists, and Honorable Mentions. Contact the Office of Admissions. Awards are made in March or early April.

Regents Scholars Program. Each year, the University of Maryland selects from the brightest high school graduates in the nation a small number of Regents Scholars to continue their education at the College Park, Baltimore County, or Eastern Shore campuses of the University. The President of each campus selects from among the applicants his or her nominees for consideration by the Chancellor and Board of Regents of the University. Scholarships are based on academic achievement and leadership potential. Each scholar will receive an annual award to cover in-state tuition, mandatory fees, room, board, and books over a four-year baccalaureate program. Final selection and official appointment to the Regents Scholars program is by the Board of Regents. Contact the Office of Admissions. Awards are made in early spring.

University of Maryland Scholars. Similar to the Regents Scholars Program, the University of Maryland Scholars are chosen from the brightest high school graduates in the nation to continue their education at the University of Maryland at College Park. The Chancellor's Scholarship Committee selects from the applications their nominees for consideration by the Chancellor of the University. Scholarships are based on academic achievement potential. Each scholar will receive an annual award to cover in-state tuition, mandatory fees, room, board, and books over a four-year baccalaureate program. Contact the Office of Admissions. Awards are made in early Spring

University Sponsored Scholarships. Most scholarships are awarded to students before they enter the University However, students who have completed one or more semesters and have not received such an award are eligible to apply Each applicant will receive consideration for all scholarships administered by the Office of Student Financial Aid, for which he or she is eligible. Students must submit an FAF by February 15, including all supporting documents, *and* must submit a scholarship application by May 1st, in order to be considered for scholarship assistance for the ensuing year. Contact the Office of Student Financial Aid Scholarship awards will be made by July 1st.

Regulations and procedures for the awarding of scholarships are formulated by the Committee on Financial Aid All recipients are subject to the academic and non-academic regulations and requirements of the University

The Committee reserves the right to review the scholarship program annually and to make adjustments in the amounts and the recipients of the awards in accordance with the funds available and the scholastic achievement of the recipients.

College and Departmental Scholarships. Questions about any award that is recommended by a college/school or department should be directed to the chairperson or dean Refer to the department or college section of this catalog, or contact the department or college directly

Maryland State Scholarships. The General Assembly of Maryland has created several programs of scholarships for Maryland residents who need financial help to obtain a college education The undergraduate programs include (1) General State scholarships, (2) Senatorial scholarships, and (3) House of Delegates scholarships High school seniors wishing to apply for these scholarships should contact their guidance counselor Students presently attending the University of Maryland should contact the Office of Student Financial Aid. Students who are entering college for the first time must take the Scholastic Aptitude test in November or December of their senior year A Maryland State Financial Aid form must be mailed to the College Scholarship Service in Princeton, New Jersey The deadline for applying for these scholarships is March 1st each year For additional information, contact the Maryland State Scholarship Board, 2100 Guilford Avenue, Baltimore, MD 21218, telephone (301) 344-6420.

Local and National Scholarships. In addition to the scholarships provided by the University of Maryland, a student should give careful consideration to scholarship aid provided by local and national scholarship programs The University maintains a database of these scholarships and will perform a scholarship search for students. Contact the Office of Student Financial Aid for details.

Out-of-State Scholarship Programs. Several states have scholarship and grant programs which permit students to use the state scholarship or grant at an out-of-state institution. Contact the awarding agency in your home state.

NEED-BASED FINANCIAL ASSISTANCE

Grants

Students at the University of Maryland will be considered for grant funds when they complete the Financial Aid Form by our priority deadline. Grant awards are made to undergraduate students from the federal Pell and SEOG programs and from limited University funds. These awards are generally based on financial need and vary in value.

Pell Grant. The Federal Government provides grant assistance to eligible students who need it to attend post-secondary institutions. Each applicant receives a Student Aid Report (SAR) from the Federal Pell Grant office. Students must submit the SAR to the institution in which they plan to enroll. Eligible students may receive a Pell Grant for each year of undergraduate study, provided they enroll in at least six (6) credit hours per semester. Eligibility for the program ends once the first undergraduate degree is received

Supplemental Educational Opportunity Grant (SEOG). The Federal SEOG program is administered by the University and provides grants to students who have exceptional financial need. Eligible students must enroll in and maintain twelve (12) credit hours per semester. Eligibility for this program ends once the first undergraduate degree is completed.

University Grant. The University administers this need-based program to students. Applicants who have at least a 3.0 GPA and whose FAF is processed by February 15th are considered for this grant.

UMCP Grant. This need-based grant is administered by the University To be considered, students must have their FAF processed by February 15th, the priority deadline for OFSA

Self-Help

The University administers a number of student loan programs which provide low-interest, long-term loans to undergraduate students with financial need Only students who complete a FAF are considered for these programs. Loans are becoming a very important part of the financial aid package. It is imperative to plan carefully for your college education, so that the amount of your indebtedness once you leave school does not exceed your ability to repay your loans.

Perkins Loans. The Perkins program was designed to make low-interest loans to students with demonstrated financial need The borrower must sign a promissory note. Repayment, at an interest rate of 5 per cent,

begins six or nine months after a student graduates, withdraws, or drops below half-time status

Stafford Loans. The Federal Stafford Loan program allows students to borrow funds directly from banks, credit unions, savings and loans, or other participating lenders. The commercial lending institution, not the University, makes the loan to the student. Undergraduates may borrow up to $2,625 per year for their first two years of study, or $4,000 per year after completing two years of study, depending on their need and lender policies. Need is determined by completion of an FAF. The interest rate is 8% during the first four years of repayment, and increases to 10% beginning with the fifth year of repayment.

Applications are available from the Office of Student Financial Aid. Forms should be completed at least three months before the funds are required. The FAF is required.

Parent Loans (PLUS) or Supplemental Loans for Students (SLS). Some banks or lending institutions currently participate in the Parent Loan (PLUS) or Supplemental Loan (SLS) programs. These loans are available to parents or dependent students and to independent students. The maximum that parents and independent students may borrow in a year is $4,000. The interest rate is variable, but will not exceed 12 per cent. Repayment begins 60 days after disbursement of the loan. In all cases, the key to obtaining one of these loans is finding a bank or lender willing to make the loan. The recommended application filing deadline is July 31st. **NOTE: Effective August 17, 1988, students must complete an FAF before a Supplemental Loan can be processed.**

Part-time Employment

Working during your college years may offer advantages in addition to the obvious one of financing a college education. The employed student has a special opportunity to learn new skills, develop good work habits, and learn how to get along with people. Sometimes part-time employment helps students choose a vocation or acquire necessary expertise.

College Work-Study Program. Under provisions of the Educational Amendments of 1976, employment may be awarded as a means of financial aid to students who (1) are in need of earnings from such employment to pursue a course of study at a college or university, and (2) are capable of maintaining good standing in the course of study while employed. Under the Work-Study Program, students may work up to twenty hours per week during the school year and a maximum of forty hours per week during the summer. The amount of money that may be earned is determined by the student's demonstrated need.

Dining Hall Workship Program. Under the Dining Hall Workship Program, students may earn their board by working approximately twelve hours per week. After a successful semester, the workload may be increased at the student's request. Students normally cannot make arrangement for employment until they are on campus at the beginning of the semester. Application must be made in person and the applicants should have a schedule of classes and study hours so that they can seek employment best suited to their free time. Contact Dining Services.

Library Workship Program. Students may be awarded jobs under the Library Workship program through the Office of Student Financial Aid. Students must follow the usual financial aid application procedures and show financial need. The amount of the award (generally about $1,200 per year) is credited to the student's account.

Additional Resources

Job Referral Services. In addition to the need-based College Work Study (CWS) program, the Job Referral service, located in Room 3120 Hornbake Library, serves without charge as a clearinghouse for students seeking part-time work and for employers seeking help. Call 454-2490 for further information. Many jobs, including full-time summer employment opportunities, are available both on and off campus.

Student Rights and Responsibilities

As a recipient of Federal student aid, you have certain rights you should exercise, and certain responsibilities you must meet. Knowing what they are will put you in a better position to make decisions about your educational goals and how you can best achieve them.

Student Rights

1. You have the right to know what financial aid programs are available.
2. You have the right to know the deadlines for submitting applications for each of the financial aid programs available.
3. You have the right to know how financial aid will be distributed, how decisions on that distribution are made, and the basis for these decisions.
4. You have the right to know how your financial need was determined. This includes how costs for tuition and fees, room and board, travel, books and supplies, personal and miscellaneous expenses, and the like are considered in your budget.
5. You have the right to know what resources (such as parental contribution, other financial aid, your assets, etc.) were considered in the calculation of your need.
6. You have the right to know how much of your financial need as determined by the institution has been met.
7. You have the right to request an explanation of the various programs in your student aid package.
8. You have the right to know the school's refund policy.
9. You have the right to know what portion of the financial aid you receive must be repaid, and what portion is grant aid. If the aid is a loan, you have the right to know what the interest rate is, the total amount that must be repaid, the payback procedures, the length of time you have to repay the loan, and when repayment is to begin.

Student Responsibilities

1. You must complete all application forms accurately and submit them by the deadline date to the appropriate office. It is understood that in some instances estimated income must be used in order to meet deadlines; however, you are required to update estimated information after this information is completed or corrected by making corrections on your Student Aid Reports (SAR) and your Financial Aid Form (FAF) acknowledgement processed by the College Scholarship Service.
2. You must provide correct information. If you purposefully give false or misleading information on your financial aid application forms, it is considered a criminal offense which could result in indictment under the U.S. Criminal Code.
3. You must return all additional, verification, corrections, and/or new information requested by either the financial aid office or the agency to which you submitted your application.
4. You are responsible for reading and understanding all forms that you are asked to sign and for keeping copies of them.
5. You must accept responsibility for all agreements that you sign.
6. You must perform the work that is agreed upon in accepting a College Work-Study award.
7. You must be aware of and comply with the deadlines for application or reapplication for aid.
8. You should be aware of the school's refund procedures.
9. You must complete an exit interview if you are a loan borrower and are terminating student status or registering as less than a half-time student.
10. You must maintain current and correct addresses with the Office of the Bursar and the Records & Registrations Office.
11. You should be aware of any stipulations (e.g., minimum amount of credits you must be registered for) in order to maintain your financial aid (i.e., grants, scholarships, loans).
12. You are responsible to contact your Financial Aid Counselor to report any changes, decisions, or in registration status (e.g. transferring to another institution, withdrawing from the University or from a class, graduation date, co-oping). Failure to do so may result in the cancellation of your aid or a portion of your aid.

For in-depth instructions, directions, and answers to your financial aid questions and concerns, please refer to the "Financial Facts" book (a guide to financial aid resources) published yearly by the Financial Aid Office. This book is made available with the financial aid packet, or you may stop by the Financial Aid Office, 2130 Mitchell Building to obtain your **FREE COPY.**

Remember... The Facts book contains vital information you need to know--from applying for financial aid, to receiving financial aid and keeping the financial aid you are offered.

SATISFACTORY ACADEMIC PROGRESS FOR FINANCIAL AID

Federal legislation governing the administration of the Pell Grant, the Perkins Loan (formerly National Direct Student Loan), the Supplemental Educational Opportunity Grant (SEOG), the College Work-Study (CWS), the Guaranteed Student Loan (GSL), and the PLUS/Supplemental Loan requires that colleges and universities define and enforce standards of progress for students receiving or applying for federal financial aid. To comply with that legislation, the following Standards of Satisfactory Progress have been established, and all recipients of the above-mentioned forms of financial aid are subject to these standards for renewal or receipt of their federal financial aid.

A review of the student's compliance with the Standards of Satisfactory Progress will normally occur at the end of the Spring Semester. Students who have not met the minimum credit hour requirement and/or minimum grade point average requirement will be informed in writing prior to the Fall Semester.

What You Must Do To Keep Your Aid

1. All undergraduate and graduate students must earn a basic annual credit minimum. The following chart will be used to determine eligibility for renewal/receipt of federal student financial aid funds

Undergraduate Students

Full-time Undergraduate Students
1st Year students must earn 15 cr/yr
2nd Year students must earn 18 cr/yr
3rd Year & up students must earn 24 cr/yr

Part-time Undergraduate Students
1st Year students must earn 8 cr/yr
2nd Year students must earn 9 cr/yr
3rd Year & up students must earn 12 cr/yr

Graduate Students

Full-time Graduate Students
1st Year students must earn 12 cr/yr
2nd Year & up students must earn 18 cr/yr

Part-time Graduate Students
1st Year students must earn 6 cr/yr
2nd Year & up students must earn 9 cr/yr

2. Federal aid recipients must maintain the required grade point average necessary to continue as degree students at the University of Maryland. Therefore, you must maintain academic standing consistent with the institution's graduation standards as defined by the Registrar and the Graduate School as outlined in the Undergraduate and Graduate Catalogs.

3. Students are eligible to receive federal student financial assistance for the following maximum time periods:

The maximum time frame allowed for a baccalaureate degree is as follows:

Pell Recipients:
Full-time. . . . .5 yrs (10 sem.)
Part-time. . . . . 10 yrs (20 sem.)

All Other Federal Aid Programs
Full-time: 4 yr program. . ..6 yrs (12 sem.)
5 yr program. . 7 yrs (14 sem.)
Part-time: 4 yr program... 12 yrs (24 sem.)
5 yr program ...13 yrs (26 sem.)

The maximum time frame allowed for a Master's degree / AGS certificate is as follows:

All Federal Aid Programs
Full-time or part-time . . . . 5 yrs (10 sem.)
*exceptions made on an individual basis for programs requiring additional coursework

The maximum time frame allowed for Doctoral degree candidates is as follows

All Federal Aid Programs
Full-time or part-time . . . . .9 yrs (18 sem.)

How to Regain Eligibility

If a student is denied aid because of lack of progress, courses must be taken at the student's own expense until he/she has earned the minimum credit hours required or earned the required grade point average. At the time the student fulfills the Standards of Satisfactory Progress, the student must notify the Office of Student Financial Aid by submitting an appeal form to us indicating that the requirements have been met.

Appeals

Students who do not comply with the Standards of Satisfactory Progress may submit a written appeal to the Office of Student Financial Aid if extenuating circumstances have affected their academic progress. The written appeal should include appropriate third-party documentation. If the appeal is denied, the student must complete the needed hours or grades before he/she will become eligible for federal financial assistance.

Complications . . . Consequences

If you do not meet these standards, your aid will be cancelled. Should you submit a written appeal and if we approve it based on your academic record and the unusual circumstances you describe, your eligibility may be reinstated. If you are not eligible for aid because you did not pass the minimum number of required credits, your eligibility may be reinstated after you successfully complete the deficient credits at your own expense. Aid will be reinstated on a funds available basis.

Not all credits count toward the minimum credit requirement; only grades of A, B, C, D, Pass, or Satisfactory will count. The following credits are not counted: "F" (Fail), "I" (Incomplete), "W" (Withdrawal), Unsatisfactory, Audit, repeats, and MEI.

The annual credit requirement and grade point average applies to you whether or not you receive financial aid.

For more information on specific Standards of Satisfactory Academic Progress issues, please contact the Office of Student Financial Aid. If you choose to withdraw from a class or are in danger of not passing a class, you should contact this office to see how your financial aid will be affected.

4 Campus Administration, Resources, and Services

Campus Administration

Office of the President
1101 Main Administration, 454-4796

The President is the chief executive officer of the University of Maryland at College Park. Four Vice Presidents, who report to the President, manage different divisions of the campus administration. The Office of Human Relations Programs, the Campus Senate, and the Department of Intercollegiate Athletics report to the Office of the President.

Academic Affairs
1119 Main Administration, 454-4508

The Office of the Vice President for Academic Affairs coordinates the academic life of all students at College Park--both graduates and undergraduates--from admission and the granting of financial aid through the development of programs of study and academic policies, to the awarding of degrees. The Vice President is responsible for the formulation, periodic revision, and implementation of academic policies and procedures, and for ensuring the integrity and continuity of all curricula offered at College Park. The Office also functions as the coordinator for participants in the Academic Common Market, an interstate agreement for sharing academic programs through an exchange of students across state lines. Under this program, students have access to selected programs not offered at public post-secondary institutions in Maryland without having to pay out-of-state tuition charges.

Administrative Affairs
1132 Main Administration, 454-4795

Administrative Affairs is responsible for the effective management of the physical, fiscal, and staff support resources of the institution. It also provides campus safety and security, materials management, administrative computing, and other necessary support services. Of particular interest to students are the community awareness and security programs offered by the University Police and the information and assistance services provided by the Bursar for concerns of students regarding University billings.

Institutional Advancement
1114 Main Administration, 454-1414

The Office of Institutional Advancement conducts a variety of programs to develop greater understanding and support for UMCP among its many publics. Units of this Office include Development, Public Information, Creative Services/Publications, and Alumni Programs. The Office of Institutional Advancement is responsible for all official campus-wide advancement programs such as fundraising, alumni affairs, production of official campus publications, films and video presentations, media relations, and management of major campus events.

Student Affairs
2108 Mitchell Building, 454-2925

The Office of the Vice President for Student Affairs provides administrative leadership for the development of programs and services that help students clarify and fulfill their needs and objectives, and that contribute to a constructive campus learning environment. The Office serves as a general point of contact for students and their families regarding student life. It coordinates Student Affairs efforts with the academic colleges, the Graduate School, and other administrative units in the areas of student conduct, due process and student-related legal matters. The Office maintains liaison with the University Chaplains, the Student Government Association (SGA), and the Graduate Student Association (GSA), and also advises Omicron Delta Kappa National Leadership Honor Society.

Administrative Dean for Undergraduate Studies
1115 Hornbake Library, South Wing 454-6231

The Office of the Dean for Undergraduate Studies coordinates the interpretation and implementation of academic regulations and requirements with the Vice President for Academic Affairs, and cooperates with academic Deans and Department Chairs to assure the overall organization and continuity of the undergraduate curriculum. Specifically, the Office oversees the general education requirements as well as undergraduate advising at both the departmental and college levels. Undergraduate Studies is also the advising home for pre-business students and for those students who have not yet decided upon a major. The special advising necessary for students interested in health professions and law is also located here.

The Office of the Dean for Undergraduate Studies supervises the General Honors Program and the Individual Studies Program, administers the Distinguished Scholar-Teacher Program, and serves as the campus coordinator for Merit Scholarships and Honor Societies (see below). It also administers the Credit by Examination Program and coordinates information about CLEP and Advanced Placement credits.

Academic service components reporting to this Office include the Career Development Center, the Office for Experiential Learning Programs, the Undergraduate Advising Center, the Health Professions Advising Office, Intensive Educational Development, Upward Bound, Talent Search, the Retention Office, and related tutorial services.

Honor Societies. Students who excel in scholarship and leadership may be invited to join the appropriate honor society. For information, contact the Coordinator, Undergraduate Advising Center, 454-2733. Honor societies at College Park include the following:

*Alpha Epsilon (Agricultural Engineering)
*Alpha Kappa Delta (Sociology)
*Alpha Lambda Delta (Scholarship-Freshmen)
Alpha Zeta (Agriculture)
Beta Alpha Psi (Accounting major in Business and Management)
Beta Gamma Sigma (Business and Management)
Delta Phi Alpha (National German Honors Society)
Eta Beta Rho (Hebrew)
*Eta Kappa Nu (Electrical Engineering)
Financial Management Association
*Gamma Theta Upsilon (Geography)
Golden Key National Honor Society (Scholarship and Leadership, juniors and seniors)
Iota Lambda Sigma (Industrial Ecucation)
*Kappa Delta Pi (Education)
*Kappa Tau Alpha (Journalism)
*Mortar Board (Scholarship and Leadership)
*Omega Chi Epsilon (Chemical Engineering)
*Omega Rho (Business and Management)
*Omicron Delta Epsilon (Economics)
*Omicron Delta Kappa (Scholarship and Leadership)
*Omicron Nu (Home Economics)
Phi Alpha Epsilon (Physical Education, Recreation, and Health)
*Phi Alpha Theta (History)
Phi Beta Kappa (Liberal Arts and Sciences)
*Phi Eta Sigma (Scholarship-Freshmen)
*Phi Kappa Phi (Senior and Graduate Scholarship)
*Phi Sigma (Biology)
*Phi Sigma Iota (French and Italian)
Phi Sigma Pi (Scholarship and Leadership)
Pi Alpha Xi (Floriculture)
Pi Mu Epsilon (Mathematics)
Pi Pi (Slavic Languages)
*Pi Sigma Alpha (Political Science)
*Psi Chi (Psychology)
Salamander (Fire Protection Engineering)

Sigma Alpha Omicron (Microbiology)
Sigma Delta Chi (Society of Professional Journalists)
*Sigma Delta Pi (Spanish)
*Sigma Gamma Tau (Aerospace Engineering)
*Sigma Tau Delta (English)
*Tau Beta Pi (Engineering)
*Members of Association of College Honor Societies

Administrative Dean for Summer Programs
2103 Reckord Armory, 454-3347

The University of Maryland at College Park offers two summer sessions of six weeks each year in addition to its regular fall and spring semesters. See the Academic Calendar printed in this catalog or the *Schedule of Classes* for exact dates. New freshman applicants who have met the regular University admission requirements for fall enrollment may begin their studies during the summer rather than waiting for the next fall term. By taking advantage of this opportunity and continuing to attend summer sessions, the time required for completion of a baccalaureate degree can be shortened by a year or more, depending upon the requirements of the chosen curriculum and the rate of progress.

Many new students have found that attendance during the summer sessions eases the transition from high school to college. Courses offered during the summer are the same in content and instruction as those offered during the fall and spring semesters.

The Summer Cultural and Recreational Program is an important part of "Summer at Maryland." The Maryland Summer Institute for the Creative and Performing Arts offers a series of programs in art, dance, drama, film and music, and outstanding performers in these media appear on the campus. Facilities for most sports and an intramural program in several team and individual sports are available to the students. For additional information, write for a Summer Programs catalog to the Administrative Dean for Summer Programs, The University of Maryland, College Park, Md 20742.

Campus Resources and Services

Academic Advising
Undergraduate Advising Center: 1117 Hornbake Library, 454-2733
Health Professions Advising: 454-2540
Credit-By-Exam/Advanced Placement/CLEP: 454-2733

General Information

Academic advising is available to all students at College Park. Advising is an essential part of an undergraduate's educational experiences. From orientation to graduation, advising can provide students with the assistance they need to plan their programs constructively. Effective academic advising functions like the hub of a wheel, providing connections between coursework and career, between learning and doing, between seeking advice and accepting responsibility.

Advantages for Students: As active and regular participants in existing advising programs, students can reasonably expect to:

(1) better understand their purposes for attending the University;
(2) develop insights about personal behaviors that promote improved adjustment to the campus setting;
(3) increase their awareness of academic programs and course offerings at College Park;
(4) more frequently explore opportunities both inside and outside the classroom for intellectual and cultural development;
(5) acquire decision-making skills that can accelerate academic and career planning;
(6) more realistically evaluate their academic progress and its relationships to successful planning; and
(7) understand the relationship between academic success and planning skills.

Required Advising: Students enrolled in certain majors are required to see advisors before each registration. For most students, routine advising is not mandatory. However, the University does require all students to see an advisor under certain circumstances:

Students in their First Semester of Registration at College Park. Students who are in their first semester of registration at College Park are urged to meet with an advisor prior to scheduling their classes.

Students Receiving an Academic Warning. Students who receive an "Academic Warning" at the end of any semester will be urged in writing to meet with an advisor prior to the beginning of the next semester. Students who do not meet with an advisor will not be allowed to drop or add courses or to register for the following semester.

Students Dismissed from the University. Each student dismissed from the University for academic reasons must, as a condition of reinstatement, meet with an academic advisor. According to the student's individual needs, this meeting may occur before or after reinstatement is granted, in no case however may a reinstated student complete registration until the fact of this meeting has been acknowledged recorded by the advisor.

Students Who Withdraw. Given circumstances deemed appropriate by the Office of Reenrollment, certain students applying for reinstatement following withdrawal may be required to meet with an advisor as a condition of their reinstatement. When this occurs, the fact of the meeting must be acknowledged/recorded by an advisor before registration can be completed. The intent is to require advising of those students who have a record of consecutive withdrawals, withdrawal during a semester following probation, and various other reasons for similar concern.

Senior Audit. After a student has earned between 70 and 80 credits toward a baccalaureate degree, that student shall be urged in writing to meet with an advisor. This meeting is for the express purpose of reviewing the student's progress toward the degree and, at a minimum, requires the advisor to detail, in writing, all coursework yet to be completed in fulfillment of the degree requirements. Each college and department will have available one or more advisors to meet with these students at appropriate times.

Finding An Advisor: Undergraduate students at College Park are encouraged to use the many advisement opportunities that are available to them. At both academic levels -college and department--at least one person has been designated to coordinate advising. A list of these persons, providing name, room number, and telephone extension is published each semester in the *Schedule of Classes*. Students who are unable to locate an advisor or who have questions about campus advising programs should visit or call the Undergraduate Advising Center, 1117 Hornbake Library, 454-2733.

Undergraduate Advising Center

Many University students have decided to be "undecided" about their majors and want help in defining their goals. Other students, such as pre-business students, have plans to enter a particular program but are not certain they will meet the requirements. Still other students discover they have chosen the wrong majors and need help redefining their goals.

Whatever their reasons for being "undecided," these students have a temporary advising home in the Undergraduate Advising Center. Working with the Center's staff of trained academic advisors, they are able to explore majors, choose and schedule courses, plan their academic program, and learn about campus-wide resources available for solving problems they encounter.

The Undergraduate Advising Center staff works closely with the Career Development Center, the Counseling Center, various tutoring services, and advisors from academic departments and programs across campus to provide a coordinated advising network which helps students design their personal academic plans, as follows.

Choosing a Major: providing information and referral to the wide range of academic programs available to students and coordinating with services offered by the Career Development Center, the Counseling Center, and the academic colleges and departments. The Undergraduate Advising Center helps students select majors which best meet their interests and further their career goals.

Pre-professional Advising: offering pre-professional advising for pre-law students (phone 454-2733), and referral for students with interest in the health professions. For further information on pre-professional advising for pre-medical, pre-dental, and pre-allied health students, consult the Campus-wide Programs section of this catalog or phone (301) 454-2540.

Information and Referral: maintaining a central file of information about academic programs and requirements and academic support services at College Park. Workshops designed to help students select majors and courses are offered regularly during the pre-registration period.

Troubleshooting: helping individual students identify and solve specific advising problems and difficulties with administrative procedures, such as transfer credit evaluation, schedule revisions, changing majors, errors in academic records, etc.

Policy Interpretation: keeping students and advisors informed about new academic policies and helping to interpret existing policies and practices and determine under what conditions exceptions might be granted.

Credit-by-Exam, CLEP, Advanced Placement: administering the campus-wide program of credit-by-examination and coordinating information about CLEP and advanced placement credits. Phone (301) 454-2733.

General Assistance: giving general assistance to students who have not been assigned to a permanent advising home, such as students visiting this campus from other institutions.

Admissions
Ground Level, Mitchell Building, 454-5550/6759

The services offered by the Office of Undergraduate Admissions are designed to meet the individual needs of both prospective and enrolled

students For prospective students, the Office provides general information about College Park through brochures, letters, personal interviews, and campus tours It also evaluates the applications of both freshman and transfer students in order to select qualified students The Office of Reenrollment reviews all applications for readmission and reinstatement Services for enrolled students include acting as a liaison with the academic departments for the evaluation of transfer credits, advanced placement, and CLEP scores, and providing any additional general information requested by enrolled students Please refer to Chapter 2 of this catalog for more information concerning undergraduate admissions.

Campus Activities
1191 Stamp Student Union; 454-5605.

The Office of Campus Activities is a major resource for students wishing to become involved in extracurricular activities on the campus. This Office provides advisement, consultation, and programming assistance to campus student organizations for the primary purpose of enhancing the educational growth of groups' leaders, members, and associates. Efforts focus on encouraging involvement of all students in campus life activities, establishing various programs for the benefit of the University community, and providing numerous leadership development opportunities. Specific efforts include:

Student Organizations. Campus Activities registers all student organizations at College Park, and provides to any student a directory of the over 350 groups. The Office also arranges reservations for these organizations when they wish to use campus facilities for their programs and events Additionally, a full-service accounting office serves those groups which have received funding from Student Activity Fees.

Organization Advisement. Major student groups such as the Student Government Association, the Homecoming Committee, and the University Talent Show Committee receive direct advisement from the staff of Campus Activities. Other student groups can also obtain help from the trained staff merely by requesting it.

Leadership Development. Campus Activities offers a wide range of training experiences in interpersonal and organizational development skills ranging in format from half-day seminars to weekend workshops to full semester courses earning academic credit.

Greeks. Social fraternities and sororities are advised and supported by Campus Activities, individually and through the three "umbrella" organizations: the Intrafraternity Council, the Panhellenic Council, and the Panhellenic Association.

Campus Senate
0104A, Reckord Armory, 454-4549

The Campus Senate, an integral part of the institution's system of governance, is unique in that it has representation from all segments of the campus community: administrators, staff, faculty, and undergraduate and graduate students. Participation in the Senate or any of its thirteen standing committees is an honor and a responsibility.

The full Senate meets eight times a year to consider matters of concern to the institution including academic issues, University policies, plans, facilities, and the welfare of faculty, staff, and students. The Senate advises the President, the Chancellor, or the Board of Regents as it deems appropriate.

To become a student senator, students must be elected through their College or School, or the Office of Undergraduate Studies Elections are held every year during the Spring semester. Additional student input is made possible through a series of Senate standing committees that draw membership from the campus community at large and cover every aspect of campus life and function.

Career Development Center
3121 Hornbake Library, South Wing, 454-2813/4

The Career Development Center (CDC) supports and assists students from all departments in early and systematic consideration of career questions and concerns, such as: *How are my interests, skills and values related to career fields and UMCP majors? What are effective strategies in securing a job or selecting a graduate school? How do I prepare now for a rewarding career in the future?* Career Development Center programs and services are designed to be used most effectively by students beginning in the freshman year and continuing through the college years Students who begin to plan their education and career early in their college experience will be in the best position to direct themselves toward meaningful and rewarding careers upon leaving the University of Maryland.

Career Development Center Programs and Services

Career Resource Center. The Career Resource Center provides excellent information and guidance for career exploration, decision-making, graduate school planning and job seeking The Center's holdings include comprehensive reference material on all aspects of work, education, and career exploration, as well as listings of job vacancies, employer and graduate school information, job seeking guides, videotapes of career workshops and employer information, and the DISCOVER computerized career information system.

Career Counselors. Career counselors will assist students in identifying careers and majors suited to their interests and skills, and in developing the skills needed for their job search, graduate training, or career change. Counselors are available with or without an appointment Check the Center for walk-in times and further information.

Course: EDCP 108D--Career Planning and Decision Making (1 cr.). This course emphasizes the learning of the lifelong process of career planning. Assignments are chosen to facilitate self and career exploration, to teach effective decision-making skills for choosing a major, selecting career objectives, and planning for future job/career changes.

Credentials Service. Credentials are a student's permanent professional record including letters of recommendation, evaluations, and course and resume information Any undergraduate or graduate student may develop a file prior to graduation to assist job or graduate school application processes All senior Education majors are required to establish a credentials file for employment purposes.

Group Programs and Campus-wide Events. Group programs on a wide variety of career development topics run continuously throughout each semester, including *How to Choose a Major, Beginning and Advanced Interviewing, Resume Writing, Orientation to the On-Campus Recruiting Program, Your Job Search,* and *Applying to Graduate School.* Campus-wide programs including career panels, Graduate/Professional School Fair, and career/job fairs bring students and employer representatives together for information exchange and employment contact. Check for current dates and times of these special events.

On-Campus Recruiting Program (OCRP). Each year 600-700 employers come to campus to interview interested students who are within two semesters of graduation. Job opportunities are concentrated in the areas of management training, engineering, computer science, accounting and financial operations, and scientific research and applications The Baltimore-Washington corridor offers additional opportunities in a variety of government and specialized careers. Employers also have the opportunity to list vacancies in the Career Resource Center and to receive information from those graduating seniors who register for and participate in the Mini-Resume Referral database service Job searches should be initiated at least one year in advance of graduation.

Placement Manual and Handouts. The Placement Manual provides detailed, comprehensive information regarding the services offered by the Career Development Center Career planning and job search strategies including resume writing and interviewing techniques are discussed, and a preliminary listing of employers participating in the On-Campus Recruiting Program is provided There are also numerous handouts available to all students, covering a wide variety of career planning topics.

Commuter Affairs
1195 Stamp Student Union, 454-5274

The Office of Commuter Affairs has established services to work on behalf of, with and for the commuter students at College Park In addition to the services described below, the Office is actively involved in several research projects and houses the National Clearinghouse for Commuter Programs.

Carpooling. Students interested in forming a carpool can join the individual match-up program by filling out an application at the Office of Commuter Affairs or calling 1-800-492-3757 Student-run regional carpools are given assistance from OCA Students who carpool with three or more people may apply at OCA for preferred parking.

Off-Campus Housing Service maintains up-to-date computerized listings of rooms, apartments, and houses (both vacant and to share) Area maps, apartment directories, and brochures concerning topics of interest to commuter students are available in the office Telephone 454-3645.

Settling In. UMaps serve as a unique guide to the institution, helping students match their own interests with courses careers and opportunities for involvement on campus Personal copies of UMaps are available in the Office of Commuter Affairs.

Shuttle Bus System is operated by the Office of Commuter Affairs for the security and convenience of all students The bus system offers five distinct programs daytime commuter routes evening security routes, evening security call-a-ride, transit service for the disabled, and charter services Schedules are available at the Stamp Student Union Information Desk, the Office of Commuter Affairs and the Shuttle-UM Office Telephone 454-2255.

Counseling Center
Shoemaker Building, 454-2931

The Counseling Center provides personal, vocational, and educational counseling both individually and in groups for UMCP students. Programs for returning students, workshops on multiple roles for women, increasing self esteem, eating disorders, adult children of alcoholics, study skills, sign language and exam skills are also available. The Center also provides consultation to a variety of groups and individuals about educational or psychological issues of concern to them. Available in the reception lobby are occupational and educational information brochures, as well as tape-recorded conversations with academic department chairpersons about majoring in their departments. Records kept as part of providing counseling services are confidential and not part of the University's educational records. Counseling Center offices are located in the Shoemaker Building. The Counseling Center includes five divisions described below.

Counseling Service. Psychologists provide professional, individual and group counseling services for students with educational-vocational and emotional-social adjustment concerns. The Service also offers a large variety of special counseling workshop programs on such topics as assertiveness training, vocational planning, and stress management. Telephone 454-2931.

Disabled Student Service. Professionals in this Office provide services for disabled students including general campus information, assistance in locating interpreters for hearing impaired, readers for the blind, and access guides to various buildings and facilities on campus. Telephone 454-5028 (TTY 454-5029).

Learning Assistance Service. Educational specialists provide individual and group work for improving academic skills such as reading comprehension, speed reading, listening, notetaking, English as a second language, and how to learn mathematics and science material. Workshops offered by this unit cover such topics as study skills, time management, learning math skills, and overcoming exam anxiety. Telephone 454-2935.

Parent Consultation and Child Evaluation Service. Professionals provide consultation, testing, and counseling for youngsters ages 5-14, and families. Telephone 454-7203.

Testing, Research, and Data Processing Unit. National testing programs such as the CLEP, GRE and Miller Analogies, as well as testing for counseling purposes, are administered through this Office. Staff members also produce a wide variety of research reports on characteristics of students and the campus environment. Telephone 454-3126.

Dining Services
1144 South Dining Hall, 454-2901
Meal Plan Information, 454-2906.

Dining Services offers several meal plan alternatives at 28 different dining locations across campus. It is the intent of Dining Services to provide flexibility, convenience, a diverse selection of foods, and convenient hours to all students, faculty, and staff.

Meal plans that are available to both on-campus and off-campus students include: 1) a la carte selections; 2) dining room meal plans; and 3) DS Cash Card, offering an automatic discount of 10% at selected locations.

Dining locations include traditional dining halls, a custom deli, ethnic eateries, a table service restaurant, an upscale '50's-style eatery, a bakery, a dairy ice cream shop, traditional fast foods, and a convenience store.

Students may obtain more information and apply for a meal plan in the Dining Services Contract Office.

Experiential Learning Programs
0119 Hornbake Library, 454-4767

The Office of Experiential Learning Programs (ELP) provides a number of learning opportunities that involve students in the work of the community and the campus. These programs encourage students to test classroom learning in work situations, explore career possibilities by direct participation, learn about the culture and people of an organization, geographic area, or academic environment, and enhance their personal development through work, academic travel, and volunteer experiences. The programs include the following:

Internships and Field Experience. There are several ways for students to earn academic credit through a work experience. Two internship courses, 386 (Field Experience) and 387 (Analysis of Field Experience), are available in many departments across the campus. These courses allow students to develop individualized work and learning plans with a sponsoring faculty member. After departmental approval, students must register concurrently for these courses. Students may take the 386/387 sequence only once in any department for a maximum of six credits. No more than one 386/387 sequence may be taken in each semester. In addition, the student must prepare and submit a learning proposal to the Experiential Learning Program Office by the end of late registration for the semester of the internship. The maximum number of 386/387 credits applicable toward a baccalaureate degree is 24. Many departments also offer their own internship programs. ELP will help students match their interests with internship options and the nearly 2,000 local placement sites. Students should plan for their internship.

Volunteer Service. The ELP Office maintains a listing of over 300 agencies and organizations that have expressed an interest in having volunteers from the University of Maryland. Volunteer service opportunities can range from research and advocacy to direct service to agencies and individuals. Students who wish to volunteer in a group setting may get involved with People Active in Community Effort (PACE), a student organization that provides valuable volunteer service learning opportunities.

Cooperative Education for Liberal Arts, Business, and the Sciences. Cooperative Education (Co-op) allows students to gain paid professional-level work experience that is related to their major. Students learn more about their field of study and earn a competitive salary. While most opportunities are in computer science and business, there are some positions available for students in most majors. To be eligible, a student must have completed thirty-six semester hours, twelve of which must have been earned at UMCP the semester before co-oping, and have a minimum 2.0 cumulative GPA in the major and each semester before co-oping. While most co-op students alternate semesters of on-campus study with semesters of full-time paid work, some choose a part-time co-op schedule. The minimum is the equivalent of six months of full-time work.

Interested students must complete a co-op application and attend three required information and preparation sessions. Students interested in co-oping beginning with the Spring semester should apply in the Fall. Those interested in co-oping beginning Summer or Fall should apply in the Spring. See the College of Engineering entry in this catalog for details about the Engineering Co-op Program.

National Student Exchange. National Student Exchange (NSE) provides students with the opportunity to experience educational travel, curricular development, cultural enrichment, and personal growth. Students may attend one of about 80 state-supported colleges and universities in the NSE consortium for a semester or academic year. The campuses vary and are located throughout the continental U.S. and in Hawaii, the Virgin Islands and Puerto Rico. Students often participate in NSE for a variety of reasons, selecting schools that provide a particular academic focus, unique cultural environment, or different geographic location. NSE provides the opportunity for students to experience a new living and learning environment and assists with a simplified admissions process and assurance of transferability of credit. Exchanges should be completed prior to the student's final thirty hours of coursework at College Park.

Maryland students pay tuition and mandatory fees to UMCP and room and board and miscellaneous fees to the host institution. Exchanges for the next academic year are negotiated in March by the NSE Coordinator. Whenever possible, students are placed at the school of their first choice.

Students must have a 2.5 cumulative GPA at the time of application and exchange. Students may not exchange during their final thirty credits.

Financial Aid
2130 Mitchell Building, 454-3046

The Office of Student Financial Aid (OFSA) administers a variety of financial assistance and student employment opportunities, primarily based on the need of the applicant. The staff of the Office is available for individual counseling on matters pertaining to financial planning for college expenses. For additional information, see Chapter 3 of this catalog.

Health Center
Campus Drive, opposite the Stamp Student Union, 454-3444

Check out the Health Center, located directly across from the Stamp Union on Campus Drive for primary care of illness and injury, health promotion and maintenance, consultation or education. Health Center services include the dental clinic; men's clinic, women's clinic, skin care; sports medicine, physical therapy, nutrition counseling, mental health, social services; laboratory and pharmacy.

Individual group health education programs are also available on topics such as sexual health, stress management, substance use and abuse; and date rape prevention.

The Health Center is open 24 hours, seven days a week. Hours vary during semester breaks and holidays. Currently registered students who have paid the health fee are eligible for care. Appointments are recommended. Students, however, are also seen on a walk-in basis. Some problems may require referral outside the Health Center at the student's expense. There are additional charges for special services such as x-ray; laboratory tests; dental treatment; allergy injections; pharmacy supplies; and physical therapy.

All information in student medical records is confidential. Medical information is released only with the student's written permission or court-ordered subpoena. The Health Center does not issue routine absence excuses for illness or injury. In case of prolonged absence or a missed exam, with the student's signed permission, the Health Center will verify dates of treatment.

Health Center telephone numbers to remember.

Information:	x3444
Appointments:	x4923
Mental Health Services:	x4925
Pharmacy:	x6439
Health Insurance	x6750
Health Education	x4922

Honors Programs
General Honors Program, 0110 Hornbake Library, 454-2532/2535

Honors programs on campus are currently under review. Changes may be forthcoming.

A number of special opportunities are available to energetic, academically talented students through the establishment of honors programs The General Honors Program is available to qualified students across campus. In addition, there are departmental honors programs in approximately thirty academic departments and colleges.

All honors programs offer challenging academic experiences characterized by small classes, active student participation, and an Honors faculty that encourages dialogue. Individually guided research, field experience, and independent study are important aspects of Honors work.

General Honors allows students to pursue their general education at a challenging, demanding level. They can engage, with others of similar ability and varied interests, in a program whose emphasis is on interdisciplinary and educationally broadening activity. These studies complement the students' specialized work in their chosen fields. Departmental honors programs offer students the opportunity to pursue more deeply their studies in their chosen fields of concentration. These programs usually begin in the junior year, although a few may start earlier. Some students who enter the General Honors Program as freshmen transfer to their departmental programs in their sophomore or junior years.

Students who successfully complete the Honors curriculum graduate with a citation in General or Departmental Honors, or both. For information about departmental programs, students should contact the department; for information about the General Honors Program, call 454-2532, or write Director, General Honors Program, The University of Maryland, College Park, MD 20742.

Human Relations Programs
1107 Hornbake Library, 454-4707/4124

The Human Relations Office (HRO) is responsible for initiating action in compliance with institution, State, and Federal directives designed to provide equal education and employment opportunities for College Park students and employees. It also monitors the outcomes of actions taken in this regard, reporting its findings to the President, the Campus Senate, and to the campus community at large. The HRO will provide students and staff with general information on equity efforts and on the status of equity and compliance matters at College Park

The HRO both sponsors programs that promote cross-cultural appreciation, and processes complaints of discrimination, following procedures set forth in the Campus Human Relations Code (see Appendix A of this catalog). Copies of the code are also available from the HRO and from the offices of the Vice Presidents and deans of the colleges and schools. Equity Officers will provide them on request (see list below).

Any student or employee having a concern about possible inequities in educational or employment matters, or who wishes to register a complaint, may contact an Equity Officer. He or she may also contact the HRO Office directly.

Minority and/or women students and staff wanting specific information about programs and opportunities available to them within a particular academic or administrative unit may contact the Equity Officer within that unit

Campus Equity Officers

HRO Campus Compliance Officer	
Ms Gladys Brown, 1107 Hornbake Library	454-4704
Academic Affairs	
Dr. Marie Davidson, 1119E Main Administration	454-2052
Administrative Affairs	
Dr. Sylvia Stewart, 1132 Main Administration	454-4795
Agricultural and Life Sciences	
Mr Eugene Britt, 1105 Symons Hall	454-3743
Architecture	
Mr Stephen F Sachs, 1205 Architecture Bldg	454-4174
Arts and Humanities	
Dr Judy Hallet, 1102 Francis Scott Key Hall	454-2510
Behavioral and Social Sciences	
Dr Diana Jackson, 2141 Tydings Hall	454-5272
Business and Management	
Dr Pat Stocker, 3140 Tydings Hall	454-2406
Computer, Mathematical, and Physical Sciences	
Dr. Richard Ellis, 2300 Mathematics Building	454-4596
Education	
Dr Jeanette Kreiser, 3119 Benjamin Building	454-1524
Engineering	
Mr James Newton, 1131L Engineering Classroom Building	454-4048
Human Ecology	
Dr Effie Hacklander 1100D Marie Mount Hall	454-5387
Institutional Advancement	
Ms Maitland Dade, 2101 Turner Building	454-4198
Journalism	
Dr Greig Stewart, 2115 Journalism Building	454-2228
Library and Information Services	
Dr William Cunningham, 4111C Hornbake Library	454-2376
Physical Education, Recreation and Health	
Ms. Colleen (Coke) Farmer, 2314 PERH Bldg	454-3550/2928
President's Office	
Mr Ray Gillian, 1111 Main Administration	454-4703
Public Affairs	
Dr Bill Powers, 2106 Morrill Hall	454-7401
Student Affairs	
Ms. Sharon Fries, 2108 Mitchell Building	454-2925

Intensive Educational Development Program
0111 Chemistry Building, 454-4646/4647

The Intensive Educational Development Program (IED) is designed to provide comprehensive support services to both freshmen and sophomores currently enrolled at the University of Maryland at College Park, and also to high school seniors seeking admission to the University Specifically, the program provide services in the areas of English, study skills, math, counseling, academic advising, and tutoring. The program encourages students to utilize all IED and University services that would enable them to develop their intellectual, personal, social, and economic potential

All prospective students attempting to gain entrance to the University by participation in the program are required to attend the six-week Summer Transitional Program which is designed to develop, expand, and improve their English, math, and study skills; provide a learning experience that will assist them in the transition from high school to the University; and provide an opportunity to challenge and further evaluate each student's potential for success at this institution.

Following the initial summer component and throughout the academic year, IED supports all students at College Park through sound academic advisement, continuing development of English, math, reading and study skills; personal counseling; and a free, comprehensive tutoring program

The Tutorial Program offers tutoring in 117 courses in 30 major academic areas. Tutors are University students who are intensively screened and trained Sessions between students and tutors are arranged at mutually convenient times Hourly math exam reviews are scheduled, as well as workshops on time management, note-taking, and theme writing

Intercollegiate Athletics
Cole Student Activities Building, 454-2485

The Department of Intercollegiate Athletics is responsible for directing intercollegiate athletic programs for both women and men, and for managing the College Park athletic complex

Women's intercollegiate athletic teams include cross country, field hockey, and volleyball in the fall, basketball, swimming, indoor track and gymnastics during the winter, and lacrosse and track in the spring Tennis competition is scheduled in both the fall and spring seasons

There are men's teams in football, soccer and cross country in the fall, basketball, swimming, wrestling, and indoor track during the winter, and baseball, golf, tennis, lacrosse, and outdoor track in the spring Both men's and women's team compete in the Atlantic Coast Conference (ACC) and the National Collegiate Athletic Association (NCAA)

National Collegiate Athletic Association Requirements for Student Athletes

1 NCAA eligibility for regular season competition subsequent to the student's first year is based upon satisfactory completion prior to each fall term of twenty four (24) semester hours of acceptable degree credits or an average of twelve (12) semester hours per term of attendance
2 The calculation of credit hours shall be based upon hours accepted for degree credit at the institution
3 Student athletes must declare a major program of study no later than the beginning of their fifth term of attendance
4 Credit hours earned toward athletic eligibility for students in declared majors must be acceptable in their specific majors
5 The 24 credit hours of acceptable credit required each year may include credits earned for a repeated course when the previous grade was an F, but *may not* include the credits if the previous grade was D or better

University of Maryland Athletic Eligibility Requirements

The University of Maryland requires student athletes to maintain a specified minimum grade point average to be eligible for practice and competition The following standards are effective for fall term, 1989

Freshman (second term)	1 29 cumulative g p a
2nd year enrollment	1 78 cumulative g p a
3rd year enrollment	1 86 cumulative g p a
4th year enrollment	2 00 cumulative g p a
5th year enrollment	2 00 cumulative g p a

Student athletes who meet the required grade point average and all other NCAA eligibility requirements will be eligible to compete and practice for the *full academic year* with the exceptions noted below

1. Student athletes who fail to meet necessary grade point average requirements for the fall semester are ineligible for the entire academic year However, ineligible student athletes may restore their eligibility at the end of any semester if they raise their grade point average to the minimum standard for the ensuing year.
2. Ineligible student athletes are not permitted to practice or compete
3. First semester freshmen and transfer student athletes will be required to meet established grade point average requirements after their initial semester at the University Transfer students are required to attain the appropriate grade point averages based upon year of enrollment
4. Student athletes in their final year of eligibility must maintain a 2.0 cumulative g p.a in order to be eligible for practice and competition during spring term
5. Eligible student athletes who go on academic warning after fall term are required to attend regularly supervised study sessions and receive academic support services as assigned by the Academic Support Unit Staff.
6. Dismissed and later reinstated student athletes are ineligible for both practice and competition until they meet designated grade point averages

For further information, please contact Dr. Gerald Gurney, 454-2485.

International Education Services
2113 Skinner (temporary address), 454-3043

International students and faculty receive a wide variety of services designed to help them benefit from their experience in the United States. International Education Services works very closely with the Office of Undergraduate Admissions by evaluating academic records from overseas and processing applications for English proficiency, visa, and financial requirements. Other services provided to the prospective student include special advising and orientations, help with securing housing, information about programs of international interest, and assistance with the forms that are required for compliance with immigration and other governmental regulations

Study Abroad Office. American students and faculty receive advisement and information about study, travel, and work in other countries Students may obtain assistance with transfer credits, reenrollment, pre-registration, and housing for the semester they return to campus. The University of Maryland offers study abroad programs in Israel and London. Information and advisement are also available about programs through other universities to most areas of the world. For more information about Study Abroad, please see Chapter 8 of this catalog.

English Language Instruction to Non-native Speakers. The University of Maryland, through the Maryland English Institute, offers two programs of English language instruction for those who are not native speakers of English. For those students who are admissable but require part-time English instruction, the Maryland English Institute offers *semi-intensive* (part-time) instruction. Semi-intensive study would also require the student to enroll in a half-time academic program. Applicants who need more instruction take an *intensive* (full-time) program *before* beginning an academic program. These programs are offered on a semester basis and are also available during the summer. During the summer *only*, semi-intensive instruction is also available to students not admitted to College Park. For information regarding admission to the intensive Maryland English Institute, contact the International Education Services office. For more information about the Maryland English Institute, see the College of Arts and Humanities entry in Chapter 7 of this catalog.

Judicial Programs
2108 Mitchell Building, 454-2927.
(To report instances of academic dishonesty, 454-4746.)

General Policy. The primary purpose for the imposition of discipline in the University setting is to protect the campus community and to create an atmosphere of personal freedom, in which the rights of all students and staff members are fully protected.

Students may be accountable to both civil authorities and to the University for acts which constitute violations of law and of University regulations. Likewise, an act constituting a violation of the resident hall contract and University regulations may result in removal from University housing, the imposition of disciplinary sanctions, or both.

General Statement of Student Responsibility. Students are expected to conduct themselves at all times in a manner consistent with the University responsibility of ensuring to all members of the community the opportunity to pursue their educational objectives, and of protecting the safety, welfare, rights, and property of all members of the community and of the University itself Students should consult the Code of Student Conduct, Appendix C, for further information

Office of Judicial Programs. The Office of Judicial Programs directs the efforts of students and staff members in matters involving student discipline The responsibilities of the Office include (1) determining the disciplinary charges to be filed against individual students or groups of students, (2) interviewing and advising parties involved in disciplinary proceedings, (3) supervising, training, and advising the various judicial boards; (4) reviewing the decisions of the judicial boards, (5) maintaining all student disciplinary records, and (6) collecting and disseminating research and analysis concerning student conduct

Student judicial board members are invited to assume positions of responsibility in the University discipline system in order that they might contribute their insights to the resolutions of disciplinary cases Final authority in disciplinary matters, however, is vested in the campus administration and in the Board of Regents

Disciplinary Procedures. Students accused of violating University regulations are accorded fundamental due process in disciplinary proceedings. Formal rules of evidence, however, shall not be applicable, nor shall deviations from prescribed procedures necessarily invalidate a decision or proceeding unless significant prejudice to one of the parties may result. University hearing procedures are outlined in the document *Preparing for a Judicial Hearing,* available in the Office of Judicial Programs.

Minority Student Education
1101 Hornbake Library, 454-4901
Nyumburu Community Center: South Campus Dining Hall, 454-5774

The Office of Minority Student Education (OMSE) was officially created on July 1, 1972, as a result of proposals and recommendations submitted to the Chancellor from the Campus Black Community and the Study Commission on Student Life. The Office exists to enhance the personal and social development and the academic success of minority students. Its mission is to work together with other resources on campus to provide support services for minority students throughout their college career at the University of Maryland

Throughout the year OMSE implements several key programs that have as their objective enhancing the recruitment, retention, and graduation of minority students at the University of Maryland. Some of the programs, which constitute a supplemental support system, are the Tutorial Program, Job Fair, Minority Pre-Professional Academic Societies Workshop Series, and Strategies for Personal, Academic and Career Excellence.

The OMSE Tutorial Program is designed to provide assistance to minority students on a walk-in or appointment basis.

The Job Fair, an annual event sponsored by OMSE in conjunction with the Career Development Center, is designed to contribute to the career development of minority undergraduates at all levels. It brings representatives from local and national companies to interview students who are interested in either permanent positions, summer positions, internships, or general occupational information. Workshops in resume writing and interviewing techniques are available for students prior to the Job Fair.

Through its Pre-Professional Society Workshop Series, OMSE staff attempt to develop a healthy socio-cultural minority community by encouraging and assisting in the organizing of pre-professional societies in each academic department OMSE supports some and works cooperatively with a number of other minority pre-professional societies, including law, business, media, engineering, and computer science. OMSE also works closely with the campus Hispanic Society, the American Indian Student Union, the Black Student Union, and the Black Panhellenic Council.

OMSE contains a study-lounge which doubles as a tutorial center and a Computer Science Center workstation. It provides minority students with an opportunity to study, get assistance from a tutor, or work at state-of-the-art computers in a relaxed, social atmosphere.

Orientation
1195 Stamp Student Union, 454-5752

The primary goal of orientation is to ease the transition of new students into the University community. Orientation begins at the time a student is admitted to the University, and ends at the culmination of his or her first semester At the time of admission to the University, new students will receive material announcing the Orientation program. The purpose of the Program is to

- *Introduce new students to the academic community
- *Coordinate academic advisement for the first semester
- *Introduce campus services and resources
- *Administer the math placement test.

The Freshman Program runs for two days and provides new students with the opportunity to interact formally and informally with faculty, administrators, returning students, and other new students. The Transfer Program lasts for one day and focuses on transfer evaluation, advisement, and

registration. The math placement test is administered during both orientation programs.
Note: Students who arrive after 8:30 a.m. on their program day will be reassigned to the next available day.

Parents of new students are invited to attend a one-day program specifically designed to introduce parents to the academic, social, and cultural milieux of the University. These programs are offered during the months of June and July.

The Orientation Office also coordinates the ongoing one-credit orientation course EDCP 108-O. The goal of this course is to introduce students to the world of higher education generally, and the University of Maryland specifically. The course is taught by faculty and administrators, and is limited to 25 students per section.

Parking
Parking Garage 2 (off Regents Drive), 454-4242

The Department of Campus Parking (DCP) is responsible for managing and maintaining over 17,000 parking spaces on the University of Maryland at College Park campus. All UMCP students who plan to park a motor vehicle in one of these spaces must register with the Department of Campus Parking. Motorcycles are considered in the same category as any other vehicle for the purposes of registration.

WHEN? You may register for parking at the DCP Office at any time during regular business hours. Extended hours and additional locations are available during the first few weeks of the semester.

WHERE? The Department of Campus Parking is now located in Parking Garage 2, off Regents Drive.

HOW? Bring your student ID card.
Pick up and complete the UMCP-DCP parking application for student parking.
Pay the appropriate parking fees. Student rates for parking on campus range from $9.00 to $67.00 for the academic year.

Illegally parked vehicles, as well as those vehicles not displaying a UMCP hanging permit, will be ticketed, and students with outstanding parking fines may be barred from registration. Complete parking regulations, fines, and other information can be obtained when you register for parking.

Bicycles and mopeds need not be registered, but must be parked in designated bicycle racks so that they do not hamper access to buildings. Maryland State law prohibits securing or parking a bicycle or moped in any manner which would obstruct vehicles or pedestrians (or handicapped access to buildings). Bicycles or mopeds parked in violation of this law will be subject to impoundment, and should be reported to the Environmental Safety Office, 454-5744.

Records and Registrations

First floor, Mitchell Building, 454-5559

The Office of Records and Registrations provides services to students and academic departments related to the processes of registration, scheduling, withdrawal, and graduation. The Office also maintains the student's academic records, and issues transcripts. Staff members are available to students for consultation. Please see Chapter 5 of this catalog for detailed information about registration procedures and record-keeping.

Recreation Services
1104 Reckord Armory, 454-3124
(24-hour recording listing facility hours: 454-5454).

Thousands of undergraduate and graduate students, faculty and staff members recognize the value of spending their free time in some sort of healthful physical activity. They find a lifestyle which balances academic pursuits with recreational and social involvement ideal for a fulfilling and enjoyable college experience. The Campus Recreation Services (CRS) staff meets almost everyone's leisure-time needs through informal recreational opportunities, intramural sports activities, fitness and wellness programs, sport clubs, and special events.

Informal recreational opportunities include lifting weights, running, swimming laps, and joining a colleague for a friendly game of racquetball, squash, or tennis. Intramural sports provide organized tournament and league play for individuals, pairs, and teams. Students have the choice of over twenty-five competitive sports (from badminton and basketball to track and field and volleyball) in the Men's Open (for commuters), Men's Dormitory, Fraternity, and Women's Leagues. There is a Graduate Students/Faculty/Staff League, as well. In most sports, entrants can select the Above Average or Average skill level of play.

Fitness and wellness programs exist in the form of aerobics and water aerobics sessions and the Lifeline Fitness Club, a self-directed fitness program, while more than twenty-five sport clubs (from bowling and martial arts to rugby and sailing) are organized and supported through CRS. These groups comprise students, faculty, and staff interested in participating (and sometimes competing against other colleges) in one particular sport. Special events, such as the annual All-Comers Track & Field Meets (open to the public as well), the Sports Trivia Bowl, and the Terrapin Tip-Off basketball tournament round out the activities calendar at CRS.

Fees paid at the time of class registration cover virtually all the costs of participating in CRS activities. All that is left is to GET INVOLVED.

Religious Programs
University Memorial Chapel and 2108 Mitchell Building, 454-5143

A broad range of religious traditions is represented by the chaplains and religious advisors at the University. Individually and cooperatively, they offer many services, including counseling, worship, student programs here and abroad, personal growth groups, and opportunities for service and involvement.

The following chaplains and their services are available:

Baptist Gerald Buckner, Chaplain	1101 Memorial Chapel,	454-4604
Black Ministries Program Louis Shockley, Jr., Chaplain	2120 Memorial Chapel,	454-5748
Christian Science Jack B. Pevenstein, Advisor	1112 Memorial Chapel,	587-3345
Church of Christ Graydon Stephenson, Chaplain	2112 Memorial Chapel,	454-5135
Church of Jesus Christ of Latter Day Saints (Morman) Neil Petty, Director	7601 Mowatt Lane, College Park, MD 20740	422-7570
Episcopal Peter Peters, Chaplain	2116 Memorial Chapel,	454-2347
Jewish Robert Saks, Chaplain	Jewish Student Center, 7612 Mowatt Lane College Park, MD 20740	422-6200
Lutheran Elizabeth Platz, Chaplain	2103 Memorial Chapel,	454-3317
Roman Catholic Thomas Kalita, Chaplain Rita Ricker, Associate	4141 Guilford Drive College Park, MD 20740 (Opposite Lot 3)	864-6223
United Campus Ministry Rob Burdette, Chaplain Kathleen Kline-Chesson, Chaplain Ki Yul Chung, Associate Chaplain	2102 Memorial Chapel,	454-2348
(Supported by the Church of the Brethren, Disciples of Christ, United Presbyterian Church, United Church of Christ, and United Methodist Church.)		
Chaplain Emeritus Wofford K. Smith	2128 Memorial Chapel,	454-1351

Resident Life
3118 Mitchell Building, 454-2711

The Department of Resident Life is responsible for management of the residence halls as well as for cultural, educational, recreational, and social programming activities in the resident halls. A staff of full-time, graduate and undergraduate employees in each of five residential communities helps to meet community programming, physical environment, and administrative needs. These staffs work with other campus and State agencies to provide services and programs in accordance with University and State expectations.

On-campus housing is available in 35 undergraduate resident halls that are near academic, cultural, social, and recreational resources of the campus. All-male, all-female, and coeducational living arrangements are available in the halls, which accommodate from 35 to 550 residents. Traditional "dormitory style" residence halls, apartment suites for four to six students, and kitchenless suites for four to eight students are available.

No student may be required to live on campus. An application is required. Once accommodated, a student may remain in residence halls throughout his or her undergraduate career. Preference is given to single, full-time undergraduates, although graduate and part-time undergraduate students may apply. Because most of the 7,800 available spaces each year are reserved by returning upperclass students, the number of entering students from whom applications are received each year exceeds the approximately 3,000 spaces that remain. Applicants who cannot be accommodated at the start of classes each fall semester are placed in residence halls throughout the academic year as vacancies occur. Soon after application is made for housing services, each student is informed of

the likelihood of securing accommodations for the start of classes, and the advisability of considering other housing alternatives

Stamp Student Union
Administrative Offices: 2104 Stamp Student Union, 454-2801

The Adele H. Stamp Student Union is the "community center" of the University of Maryland at College Park. Over 22,000 students, faculty staff members, and campus guests visit the Union daily to take advantage of its services, programs, and facilities. In serving as the campus community center, the Union offers *lounge space*, a variety of *information services, recreation and leisure activities, student sponsored programs, visual arts, retail outlets*, and over 40,000 square feet of reservable space.

Information Services
- *AIM (Access to Information about Maryland), a computerized guide to activities and events at College Park, located in the Union and Library lobbies.
- *Information Center located in the main lobby (phone 454-2801)
- *Bulletin Boards located throughout the building
- *Copy machines in the main lobby
- *Display showcases located on the main level

Recreation and Leisure
- Camping equipment rentals at the "Outhaus" in the Recreation Center
- Hoff movie theatre (for schedule, phone 454-2594)
- Piano practice rooms located on the second level
- Recreation Center, including full-service bowling lanes, billiard tables, and video games (for information, phone 454-2804)

Student Sponsored Programs
Stamp Union Program Council (SUPC), a student-directed program board whose committees plan games, tournaments, concerts, lectures, outdoor recreation trips, and bicycle and road races (phone 454-4987)
Student Tutorial Academic Referral Center (STAR Center), offering tutor listings and test files (phone 454-4948).
Student Organization offices of over 40 student groups, including the Student Government Association.

Visual Arts
Art Center, a visual arts work and teaching center, offering mini-courses and studio space for a variety of arts including photography, woodworking, pottery, and sign and banner services (phone 454-4754)
Parents' Association Art Gallery, located off the main lobby.

Retail Outlets (all retail services are located in the lower level mall area, except the Book Center).
- Bank: Citizens Bank and Trust Co. of Maryland
- Bookstore: University Book Center (lower level)
- Flower Cart: Union Shop
- Food Services: Eateries, Dory's Ice Cream, Food Co-op, Maryland Deli and Sandwich Factory, Pizza Shop, Roy Rogers Family Restaurant, What's Your Beef Restaurant.
- Record Co-op, featuring records, tapes, and compact disks
- Ticket Office, offering campus performance tickets, and a full Ticket Center Outlet (for ticket information, phone 454-2803).
- Union Shop, featuring snacks, sodas, tobacco, and newspapers and magazines
- U.S. Postal Service Automated Facility

Reservable Space
The Union offers meeting rooms that accommodate groups from 8 to 1000 people. For reservation, or catering information, contact the Union Reservation Office at 454-2809.

Union Hours
The Union is open Monday through Thursday from 7:00 a.m. until 12:00 midnight; on Friday, until 1:00 a.m., on Saturday from 8:00 a.m.until 1:00 a.m., and on Sunday from 12:00 noon until 12:00 midnight.

Talent Search
0112 Chemistry Building, 454-1578

The Talent Search Program is an educational outreach program which provides pre-college orientation services and college placement assistance to middle and secondary school students and adults up to age 27 years who display the academic ability and interest to pursue postsecondary study. Program participants are provided with advisement on postsecondary and career options, financial aid information, college orientation seminars and workshops, college campus visits, and assistance in preparing for college entrance exams and the application process.

Tutoring
When students need tutoring, they should first contact their professor or the graduate Teaching Assistant assigned to the course. They should inquire also at the department office to find out if the department sponsors any tutoring services. Many campus clubs, organizations, and honors societies also offer tutoring. Check out the Learning Assistance Center, General Honors Program, Intensive Educational Development Program, Office of Minority Student Education, and the STAR Center in the Stamp Student Union.

University Book Center
Lower level, Stamp Student Union, 454-3222

The Book Center provides a convenient, on-campus selection of textbooks, general interest books, literature, best sellers, magazines, and a large selection of school and office supplies to meet every educational need. The Book Center also has a wide selection of imprinted clothes and related items, plus cards, gifts, posters, convenience foods, and health and beauty aids. The Book Center is located on the lower level, east, of the Stamp Student Union, and is open Monday through Friday, 8:30 a.m. to 7:30 p.m.; Saturday from 9:00 a.m. to 5:00 p.m.; and Sunday from 12:00 noon to 5:00 p.m.

Upward Bound Program
1107 West Education Annex, 454-2116/2117

The University of Maryland's Upward Bound Program is a highly successful college preparatory program designed to provide rigorous academic instruction, individual tutoring and counseling to capable but underachieving high school students. Upward Bound serves as a supplement to its participants' secondary school experiences through an academic year and six-week summer residential program.

On twenty-two Saturdays during the academic year, Upward Bound students receive individualized academic skills development in English, mathematics and science. Tutoring, individual and group counseling are also provided. Through counseling each student is given the opportunity to improve or develop skills necessary to acquiring a positive self image, broadening his/her educational perspective, and for identifying and actualizing undiscovered potentials. Counselor follow-up in the high schools along with after-school tutorial services, adds to the progress and motivation of the students.

During the summer, Upward Bound students live on the college campus. The students are involved in an intensive academic study program that includes English, mathematics, science, reading, writing, and study skills development. Individual and group counseling is also an important element of the program.

Upward Bound students are selected from high schools in Prince George's and Montgomery counties. Students are recommended to the program by high school principals, teachers, counselors, talent search, social service agencies, and individuals knowledgeable about the program.

Persons interested in further information regarding the Upward Bound Program should contact the Director of Upward Bound, Room 1107, West Education Annex, The University of Maryland, College Park, MD 20742; (301) 454-2116/7.

5 Registration, Records, and Academic Regulations

REGISTRATION

First Floor Mitchell Building, 454-5559

To attend classes at the University of Maryland it is necessary to process an official registration. Specific registration dates and instructions can be found in the current *SCHEDULE OF CLASSES*. The *SCHEDULE* is issued four times per year: prior to early registration for the fall and spring semesters, and again at the beginning of each semester.

1. Newly admitted students are invited and encouraged to attend an Orientation session. Advising and course registration are part of the program. All newly admitted students must meet with an advisor prior to registration.

2. All incoming freshman, transfer, and new graduate students are required to provide proof of immunization for measles, rubella, mumps, and tetanus/diphtheria

3. Currently enrolled students are invited to **early registration.** Registration appointments for the Fall semester begin in mid March; appointments for the Spring semester begin in late October.

4. **Open registration** follows Early Registration and continues up to the first day of classes. During this time students may make schedule adjustments or process an original registration.

5. The **schedule adjustment period** is the first ten day of classes for the fall and spring semesters, and a corresponding period for summer semesters. During this period, a full-time undergraduate may drop or add courses, change sections, or change credit level with no charge. Part-time undergraduate students may also drop or add courses, change sections, or change credit level, but they should consult the deadline section in the *SCHEDULE OF CLASSES* to avoid incurring additional charges. The choice of **grading method option** (including the pass-fail option) may be changed only during the schedule adjustment period. Registration is final and official when all fees are paid.

Courses may be added, where space is available, during the schedule adjustment period and will appear on the student's permanent record along with other courses previously listed. Courses dropped during this period will not appear on the student's permanent record

Departments may identify courses or sections of courses with the approval of the Office of the Vice President for Academic Affairs, which after the first five days of the schedule adjustment period, shall require faculty or departmental approval for students to add

6. After the schedule adjustment period:
   a) Courses **may not** be added without special permission of the department and the dean of the academic unit in which the student is enrolled.
   b) All courses for which the student is enrolled (or subsequently adds) shall remain as a part of the student's permanent record. The student's status shall be considered as full-time if the number of credit hours enrolled at this time is nine or more
   c) A charge shall be made for each course dropped or added.
   d) An official class list for each course being offered is issued to the appropriate department by the Office of Records and Registrations. No student is permitted to attend a class if his or her name does not appear on the class list. Instructors must report discrepancies to the Office of Records and Registrations
7. The **drop period** for undergraduate students will begin at the close of the schedule adjustment period and terminate at the end of tenth week of classes during the fall and spring semesters and at a corresponding time for summer sessions.

   During the drop period a student may drop a maximum of four credits. However, if the course that the student wishes to drop carries more than four credits, the student may drop the entire course or, in the case of a variable credit course, reduce the credit level by up to four credits. Such a drop will be recorded on the student's permanent record with the notation "W" and will be considered to represent a single enrollment (one of three possible) in the course. This mark shall not be used in any computation of cumulative grade point average
8. An official class list for each course being offered is issued each semester to the appropriate department by the Office of Records and Registrations. No student is permitted to attend a class if his or her name does not appear on the class list. Instructors must report discrepancies to Records and Registrations. At the end of the semester official grade lists are issued to each department. Instructors mark the final grades on the grade lists, sign the lists and return them to Records and Registrations.
9. **Withdrawal from the University.** Students wishing to withdraw from all courses must do so on or before the last day of classes. The policies governing withdrawals are as follows:
   a. Should a student desire or be compelled to withdraw from the University at any time, he or she must secure a form for withdrawal from the Records Office, and submit the form along with the semester identification and registration cards.
   b. The effective date of withdrawal as far as refunds are concerned is the date that the withdrawal form is received by the Records Office. A notation of *Withdrawn* and the effective date of the withdrawal will be posted to the permanent record. The instructors and the college offices will be notified of all withdrawn students. The deadline date for submitting the withdrawal form for each semester is the last day of classes. Contact Undergraduate Admissions for readmission information.
10. When **Dean's Approval** is required the Dean for Undergraduate Studies shall assume the responsibilities normally delegated to the dean in the case of non-college students.

The University Studies Program

The University Studies Program is the set of general education requirements at the University of Maryland College Park. These requirements are effective for students with eight or fewer credits from any institution of higher education, entering in May 1980 and thereafter. Students who entered the University of Maryland at College Park prior to May 1980 are referred to Chapter 6 for additional information about general education requirements

These requirements are designed to be spread throughout the student's four years, and represent a third of the total academic work required for graduation. The purpose of the program is to provide students with the intellectual skills and conceptual background basic to an understanding of the universe, society, and themselves.

The requirements include Fundamental Studies in written English and mathematics; Distributive Studies in the physical and biological sciences, the social and behavioral sciences, and the arts and humanities; and Advanced Studies in comparative intellectual approaches to knowledge and to the analysis and solution of problems. For a more detailed outline of the program requirements, and a list of the approved courses which may be selected to meet them, see Chapter 6 of this catalog. The University Studies Program

Enrollment in Majors

A student who is eligible to remain at College Park may transfer among curricula, colleges, or other academic units except where limitations on enrollments have been approved. A student must be enrolled in the major program from which he or she plans to graduate, when registering for the final fifteen hours of the baccalaureate program. This requirement also

applies to the third year of the combined, preprofessional degree programs.

A student who wishes to complete a **second major** in addition to his or her primary major of record must obtain written permission in advance from the appropriate deans. As early as possible, but in no case later than the beginning of the second semester before the expected date of graduation, the student must file with the departments or programs involved and with the appropriate deans, formal programs showing the courses to be offered to meet requirements in each of the majors and supporting areas as well as the college and general education requirements. Approval will not be granted if there is extensive overlap between the two programs. Students enrolled in two majors simultaneously must satisfactorily complete the regularly prescribed requirements for each of the programs. Courses taken for one major may be counted as part of the degree requirements for the other and toward the requirements for the University Studies Program. If two colleges are involved in the double major program, the student must designate which college is responsible for the maintenance of records.

Concurrent Undergraduate-Graduate Registration

A senior at the University of Maryland whose GPA is at least 3.0 and who is within seven hours of completing the requirements for the undergraduate degree may, with the approval of his or her dean, the chair of the department concerned, and the Graduate School, register for graduate courses, which may later be counted for graduate credit toward an advanced degree at this University. The total of undergraduate and graduate credits in the senior year cannot be used for graduate credit unless proper prearrangement is made. Seniors who wish to take advantage of this opportunity must formally apply for admission to the Graduate School.

Credit Unit and Load Each Semester

The semester hour, which is the unit of credit, is the equivalent of a subject pursued one period a week for one semester. Two or three hours of laboratory or field work are equivalent to one lecture or recitation period. The student is expected to devote three hours a week in classroom or laboratory or in outside preparation for each credit hour in any course.

In order for undergraduate students to complete most curricula in four academic years, the semester credit load must range form twelve to nineteen hours so that they would complete from thirty to thirty-six hours each year toward the degree. **Students registering for more than nineteen hours per semester must have the approval of their dean.**

Undergraduate Credit for Graduate Level Courses

Subject to requirements determined by the graduate faculty of the department or program offering the course, undergraduate students may register for graduate level courses, i.e., those numbered from 600 to 898, with the exception of 799, for undergraduate credit.

A student seeking to utilize the option will normally be in the senior year, have earned an accumulated grade point average of at least 3.0, have successfully completed, with a grade of B or better, the prerequisite and correlative courses, and be a major in the offering or a closely related department. The student will be required to obtain prior approval of the department offering the course. Graduate School approval is not required.

Enrollment in a graduate level course does not in any way imply subsequent departmental or Graduate School approval for admission into a graduate program, nor may the course be used as credit for a graduate degree at the University of Maryland.

Off-Campus Courses

Courses taken at another campus of the University of Maryland, or at another institution concurrent with regular registration at College Park are treated as off-campus courses and may not be credited toward a degree without approval in advance by the dean of the college from which the student expects a degree. The same rule applies to off-campus registration in the summer program of another institution. However, courses taken through The Consortium of Universities of the Washington Metropolitan Area are treated as resident credit. (See section on the Consortium, below.) Permission to enroll in off-campus courses must be requested for any course which will eventually be added to the College Park transcript.

IDENTIFICATION CARDS

There are two cards, used jointly, to identify currently enrolled students: the photo ID and the semester registration card. The photo ID card is issued at the time the student first registers for classes. This card is to be used for the entire duration of enrollment. The semester registration card validates the photo identification card and is issued for each semester in which the student is registered. Both cards should be carried at all times.

Together the photo identification card and semester registration card can be used by students to withdraw books from the libraries, for admission to most athletic, social, and cultural events, and as a general form of identification on campus. Students who have food service contracts use a separate identification card issued by Dining Services.

There is a replacement charge of $1.00 for lost or stolen registration cards and $7.00 for lost, stolen, or broken photo identification cards. Questions concerning the identification card system should be addressed to the Office of Records and Registrations.

VETERANS BENEFITS

Students attending the University under the Veterans Education Assistance Act (Title 38, U.S. Code) may receive assistance and enrollment certification at the Veterans Certification Office in Records and Registrations, first floor, the Mitchell Building. Consult the *SCHEDULE OF CLASSES* for further information.

ATTENDANCE

1. The University expects each student to take full responsibility for his or her academic work and academic progress. The student, to progress satisfactorily, must meet the quantitative requirements of each course for which he or she is registered. Students are expected to attend classes regularly, for consistent attendance offers the most effective opportunity open to all students to gain a developing command of the concepts and materials of their course of study. However, attendance in class, in and of itself, in not a criterion for evaluation of the student's degree of success or failure. Furthermore, absences (whether excused or unexcused) do not alter what is expected of the student qualitatively and quantitatively. Except as provided below, absences will not be used in the computation of grades, and the recording of student absences will not be required of the faculty.
2. In certain courses in-class participation is an integral part of the work of the course. A few examples would be courses in public speaking and group discussion, courses emphasizing conversation in foreign languages, certain courses in physical education, and certain laboratory sessions. Each department shall determine which of its courses fall into this category. It shall be the responsibility of the instructor in such courses to inform each class at the beginning of the semester that in-class participation is an integral part of the work of the course and that absences will be taken into account in the evaluation of the student's work in the course.
3. Laboratory meetings require special preparation of equipment and materials by the staff. A student who is not present for a laboratory exercise has missed that part of the course and cannot expect that he or she will be given an opportunity to make up this work later in the term.
4. Special provision for freshmen: the freshman year is a transitional year. Absences of freshmen in the basic freshman courses will be reported to the student's dean or college officer when the student has accumulated more than three unexcused absences.
5. Excuses for absences (in basic freshman courses and in courses where in-class participation is a significant part of the work of the course) will be handled by the instructor in the course in accordance with the general policy of his or her department and college.

THE CONSORTIUM OF UNIVERSITIES OF THE WASHINGTON METROPOLITAN AREA

The Consortium of Universities of the Washington Metropolitan Area consists of American University, The Catholic University of America, Gallaudet College, Georgetown University, George Washington University, Howard University, Marymount University, Mt. Vernon College, Trinity College, University of the District of Columbia, and the University of Maryland at College Park. Students enrolled in these institutions are able to attend certain classes at the other campuses and have the credit considered as "residence" credit at their own institutions. The intention is to allow students to take an occasional course to augment a program rather than to develop an individual program. Payment of tuition for courses will be made at the student's home campus.

Currently registered, degree-seeking UMCP undergraduates may participate in the Consortium program according to the stipulations listed in the current edition of the *Schedule of Classes*. Students interested in additional information about the Consortium program should contact the Consortium Coordinator in the Office of Records and Registrations, Mitchell Building.

EXAMINATIONS

1. All examinations and tests shall be given during class hours in accordance with the regularly scheduled (or officially "arranged") time and place of each course listed in the *Schedule of Classes*. Unpublished changes in the scheduling or location of classes/tests must be approved by the department chair and reported to the dean. It is the responsibility of the student to be informed concerning the dates of announced quizzes, tests, and examinations.
2. It is the policy of the University to excuse the absences of students that result from religious observances and to provide without penalty for the rescheduling of examinations and other written tests that fall on religious holidays. Examinations and other written tests may not be scheduled on Rosh Hashanah, Yom Kippur, or Good Friday. An instructor is not under obligation to give a student a make-up examination unless the absence was caused by illness, religious observance, participation in University activities at the request of University authorities, or compelling circumstances beyond the student's control. In cases of dispute, the student may appeal to the chair of the department offering the course within one week from the date of the refusal of the right to take a make-up exam.
   A make-up examination, when permitted, must be given on campus, unless the published schedule and course description require other arrangements. The make-up examination must be at a time and place mutually agreeable to the instructor and student, cover only the material for which the student was originally responsible, and be given within a time limit that retains currency of the material. The make-up must not interfere with the student's regularly scheduled classes. In the event that a group of students require the same make-up examination, one make-up time may be scheduled at the convenience of the instructor and the largest possible number of students involved. Under the same guidelines students shall have equal access to all information and drills missed due to the reasons listed.
3. A final examination shall be given in every undergraduate course. Exceptions may be made with the written approval of the chair of the department and the dean. To avoid basing too much of the semester grade upon the final examination, additional tests, quizzes, term papers, reports and the like should be used to determine a student's comprehension of a course. The order of procedure in these matters is left to the discretion of departments or professors and should be announced to the class at the beginning of a course. All final examinations must be held on the examination days of the Official Final Examination Schedule. No final examination shall be given at a time other than that scheduled in the Official Examination Schedule without written permission of the department chair.
4. As of fall semester, 1980, graduating seniors will be expected to take final exams during the regular examination period. However, graduating seniors are not required to take final examinations on the day of graduation or on any regularly scheduled examination day following graduation. In courses with exams scheduled on those days, graduating seniors are expected to see their instructors early in the semester to make alternate arrangements.
5. A file of all final examination questions must be kept by the chair of each department.
6. The chair of each department is responsible for the adequate administration of examinations in courses under his or her jurisdiction. The deans should present the matter of examinations for consideration in staff conferences from time to time and investigate examination procedures in their respective colleges.
7. Every examination shall be designed to require for its completion not more than the regularly scheduled period except for final examinations.
8. A typewritten, mimeographed or printed set of questions shall be placed in the hands of every examinee in every test or examination requiring at least one period, unless the dean has authorized some other procedure.
9. Each instructor must safeguard examination questions and all trial sheets, drafts, and stencils.
10. Each instructor should avoid the use of examination questions which have been included in recently given examinations and should prepare examinations that will make dishonesty difficult.
11. Only clerical help approved by the department chair shall be employed in the preparation or reproduction of tests or examination questions.
12. Proctors must be in the examination room at least ten minutes before the hour of a final examination. Provisions should be made for proper ventilation, lighting, and a seating plan. At least one of the proctors present must be sufficiently cognizant of the subject matter of the examination to deal authoritatively with inquiries arising from the examination.
13. Books, papers, etc. belonging to the student, must be left in a place designated by the instructor before the student takes his or her seat, except in such cases where books or work sheets are permitted.
14. Students should be seated at least every other seat apart, or its equivalent, i.e., about three feet. Where this arrangement is not possible some means must be provided to protect the integrity of the examination.
15. "Blue books" only must be used in periodic or final examinations unless special forms are furnished by the department concerned.
16. If mathematical tables are required in an examination, they shall be furnished by the instructor. If textbooks are used, this rule does not apply.
17. Proctors must exercise all diligence to prevent dishonesty and to enforce proper examination decorum, including abstention from smoking.
18. Where an instructor must proctor more than forty students, he or she should consult the chair of the department concerning proctorial assistance. An instructor should consult the department chair if in his or her opinion a smaller number of students for an examination requires the help of another instructor.
19. No student who leaves an examination room will be permitted to return, except in unusual circumstances, in which case permission to do so must be granted by the proctor prior to the student's departure.
20. All conversation will cease prior to the passing out of examination papers, and silence will be maintained in the room during the entire examination period.
21. Examination papers will be placed face down on the writing surface until the examination is officially begun by the proctor.
22. Examination papers will be kept flat on the writing surface at all times.

CHANGE OF ADDRESS - Students are expected to notify the Office of Records and Registrations of any change in their local or permanent address. Change of Address forms are available at the Registration Counter, first floor, Mitchell Building and at the Office of the Bursar, first floor, Lee Building.

RECORDS

MARKING SYSTEM AND RECORD NOTATIONS

The Records Office, located on the first floor of the Mitchell Building, is responsible for maintaining student records and issuing official transcripts.

The following symbols are used on the student's permanent record for all courses in which he or she is enrolled after the initial registration and schedule adjustment period: A, B, C, D, F, I, P, S, and W. These marks remain as part of the student's permanent records and may be changed only by the original instructor on certification, approved by the department chair and the dean, that an actual mistake was made in determining or recording the grade.

A - denotes excellent mastery of the subject and outstanding scholarship. In computations of cumulative or semester averages, a mark of A will be assigned a value of 4 quality points per credit hour.

B - denotes good mastery of the subject and good scholarship. A mark of B is assigned a value of 3 quality points per credit hour.

C - denotes acceptable mastery of the subject and the usual achievement expected. A mark of C is assigned a value of 2 quality points per credit hour.

D - denotes borderline understanding of the subject. It denotes marginal performance, and it does not represent satisfactory progress toward a degree. A mark of D is assigned a value of 1 quality point per credit hour.

F - denotes failure to understand the subject and unsatisfactory performance. A mark of F is assigned a value of 0 quality points per credit hour.

S is a department option mark that may be used to denote satisfactory performance by a student in progressing thesis projects, orientation courses, practice teaching, and the like. In computation of cumulative averages a mark of S will not be included.

W is used to indicate withdrawal from a course in which the student was enrolled at the end of the schedule adjustment period. For information and completeness, the mark of W is placed on the student's permanent record by the Office of Records and Registrations. The instructor will be notified that the student has withdrawn from the course. This mark is not used in any computation of quality points or cumulative average totals at the end of the semester.

Audit - A student may register to audit a course or courses which have been designated as available under the audit option and in which space is available. The notation AUD will be placed on the transcript for each course audited. A notation to the effect that this symbol does not imply attendance or any other effort in the course will be included on the transcript in the explanation of the grading system.

Pass-Fail - The mark of P is a student option mark, equivalent to A, B, C or D. The student must inform the Registrations Office of the selection of this option by the end of the schedule adjustment period.

The following policy was approved by the Board of Regents for implementation beginning with the Spring 1989 semester

1. To register for a course under the pass fail option, an undergraduate must have completed 30 or more credit hours of college credit with a GPA of at least 2.0. At least 15 of these credit hours must have been completed at UMCP with a University of Maryland GPA of at least 2.0.
2. Courses for which this option applies must be electives in the student's program. The courses may not be college, major, field of concentration, or general education program requirements.
3. Only one course per semester may be registered for under the pass-fail option.
4. No more than 12 semester hours of credit may be taken under the pass-fail option during a student's college career.
5. Students may not choose this option when re-registering for a course.
6. When registering under the pass-fail option, a course that is **passed** will count as **hours** in the student's record but will not be computed in the grade point average. A course that is **failed** will appear on the student's record and will be computed both in the overall average and the semester average.
7. Students registering for a course under the pass-fail option are required to complete all regular course requirements. Their work will be evaluated by the instructor by the normal procedure for letter grades. The instructor will submit the normal grade. The grades A, B, C, or D will automatically be converted by the Office of Records and Registrations to the grade P on the student's permanent record. The grade F will remain as given. The choice of grading option may be changed only during the schedule adjustment period for courses in which the student is currently registered.

Incompletes - The mark of **"I"** is an exceptional mark that is an instructor option. It is given only to a student whose work in a course has been qualitatively satisfactory, when, because of illness or other circumstances beyond the student's control, he or she has been unable to complete some small portion of the work of the course.
In no case will the mark "I" be recorded for a student who has not completed the major portion of the work of the course.

1. The student will remove the "I" by completing work assigned by the instructor. It is the student's responsibility to request arrangements for completion of the work and to request that an *Incomplete Contract* be written. These arrangements must be documented in the *Incomplete Contract*, signed by both the student and the instructor.
2. The *Incomplete Contract* must be submitted to the dean of the college offering the course, and a copy forwarded to the Records Office, within six weeks after the grade submittal deadline or the "I" will convert to a grade of "F". A copy of the signed agreement should also be filed in the department office.
3. All course work required by an Incomplete Contract must be completed by the time stipulated in the contract, usually the end of the next semester, but in any event, no later than one year. If the instructor is unavailable, the department chair will, upon request of the student, make the arrangements for the student to complete the course requirements. If the remaining work for the course as defined in the contract is not completed on schedule, the "I" will be converted to the grade indicated on the contract.
4. Exceptions to the time period cited above may be granted by the student's dean upon the written request of the student if circumstances are deemed to warrant further delay. The new completion date must again be specified and agreed to in writing by the student and the dean.
5. It is the responsibility of the instructor or the department chair concerned to return the appropriate supplementary grade report, both to the appropriate dean and to the Office of Records and Registrations, upon completion of the conditions of the Incomplete Contract.
6. The "I" cannot be removed through re-registration for the course or through the technique of "credit by examination." In any event this mark shall not be used in any computation of quality points or cumulative averages.

RECORD NOTATIONS

In addition to the above marks, there are provisions for other record or transcript notations that may be used based on University policy and individual circumstances.

Repeat - Beginning Fall 1973 the highest grade received in the repeated course is used to calculate the GPA. A student may repeat any course; however no student may be registered for a course more than three times.

If a student repeats a course in which he or she has already earned a mark of A, B, C, D, P, or S, the subsequent attempt shall not increase the total hours earned toward the degree. Only the highest mark will be used in computation of the student's cumulative average. Under unusual circumstances, the student's dean may grant an exception to this policy.

Duplicate course - used to indicate two courses with the same course content. The second course is counted in cumulative totals unless an exception is made by the student's dean.

Non-applicable (Non-Appl) - In all cases of transfer from one college to another at College Park, the dean of the receiving college, with the approval of the student, shall indicate which courses, if any, in the student's previous academic program are not applicable to his or her new program, and shall notify the Office of Records and Registration of the adjustments that are to be made in determining the student's progress toward a degree. Deletions may occur both in credits attempted and correspondingly in credits earned. This evaluation shall be made upon the student's initial entry into a new program, not thereafter. If a student transfers from one program to another, his or her record evaluation shall be made by the dean in the same way as if he or she were transferring colleges. If the student subsequently transfers to a third college, the dean of the third college shall make a similar initial adjustment; courses marked "nonapplicable" by the second dean may become applicable in the third program.

Excluded Credit (Excl Crd) - Excluded credit is noted when **Academic Clemency** has been granted.

Academic Clemency Policy

Undergraduate students returning to College Park after a separation of a minimum of five calendar years may petition the appropriate dean to have a number of previously earned grades and credits removed from the calculation of their cumulative grade point average. Up to sixteen credits and corresponding grades from courses previously completed at any University of Maryland campus will be removed from calculation of the grade point average and will not be counted toward graduation requirements. The petition for clemency must be filed in the first semester of return to the campus. Approval is neither automatic or guaranteed.

PROFICIENCY EXAMINATION PROGRAMS

The University of Maryland at College Park offers several opportunities to earn college credit through satisfactory achievement in a variety of examinations for new, continuing and returning students.

Currently, undergraduate students may earn credit through the various proficiency examination programs up to a total of one-half of the credits required for their degree. It is the student's responsibility to consult with the appropriate dean or advisor with regard to applicability of any credit earned by examination to a specific degree program and to determine courses that should not be elected in order to avoid duplication. **A student will not receive credit for both passing an examination in a course and completing the same course.**

Students with specific questions about the University's policy may contact the Coordinator, Undergraduate Advising Center, Room 1117, Hornbake Library (454-2733).

Three proficiency examination programs are recognized for credit by College Park:

1. **Advanced Placement Programs (A.P.)** - For complete policy and information, see the chapter on Admissions in this catalog.
2. **College Level Examination Program (CLEP)** - This program exists for the purpose of recognizing college level competence achieved outside the college classroom. Two types of CLEP tests are available: General Examinations, which cover the content of a broad field of study; and Subject Examinations, which cover the specific content of a college course. Credit can be earned and will be recognized by College Park for some CLEP General or Subject Examinations, provided satisfactory scores are attained. Credits earned under CLEP are not considered "residence" credit.

Policies and Administration of CLEP Examinations
These tests are administered at CLEP testing centers throughout the country. Written applications must be completed and on file at the testing center selected, usually not later than four working weeks prior to the intended test date. The University of Maryland is a CLEP Test Center (Test Center Code #5814), giving tests on the third Saturday of most months.

The fees for these examinations are listed on the standard CLEP application. To obtain an application or additional information, contact the CLEP Administrator in the Counseling Center, Room 0106A Shoemaker Hall, or write to CLEP, CN 6600, Princeton, New Jersey, 08541-6600.

Students who want to earn credit through CLEP must have their official score reports sent to the Office of Undergraduate Admissions, Mitchell Building, University of Maryland, College Park, MD 20742.

A student must matriculate at College Park before requesting the posting of CLEP credits. Such posting will not be done until a student has established a transcript, i.e., earned credit through regularly taken courses.

Each institution of the University establishes standards for acceptance of CLEP and AP exemptions and credits. Students must check with the institution to which they will transfer to learn if they will lose, maintain, or gain credit.

College Park will award credit for a CLEP examination provided the examination was being accepted for credit on this campus on the date the examination was taken by the student.

Credit will not be given for both completing a course and passing an examination covering substantially the same material.

CLEP examinations posted on transcripts from other institutions will be accepted if the examination has been approved by College Park and the scores reported are equal to or greater than those required by this campus. If the transcript from the prior institution does not carry the scores, it will be the responsibility of the student to request the Educational Testing Service to forward a copy of the official report to the Office of Admissions.

General Examinations

Examination	*Minimum Score*	*Crs. Awd.*
English Composition	*489*	*3*
Acceptable for ENGL 101 (if taken prior to 7/1/77); ENGL 102 (if taken prior to 7/1/78). Not acceptable after 7/1/78.		
Natural Science	489	6
Acceptable for general science credit, no specific course		
Mathematics	497	3
Acceptable for general math credit (if taken prior to 9/1/77). *Not acceptable after 9/1/79.*		
Humanities	489	6
Sub Score:*		
Fine Arts	(50)	(3)
Acceptable for ARTH 100 (if taken prior to 9/1/79). *Not acceptable after 9/1/79.*		
Literature	(50)	(3)
Acceptable for general English credit, no specific course.		
Social Science/History	488	6
Sub Score:*		
Social Sciences	(50)	(3)
Acceptable for general social science credit.		
History	(50)	(3)
Acceptable for general history credit (if taken prior to 12/31/79). *Not acceptable after 12/31/79.*		

*Sub scores will be used in approving three credits when only one test is acceptable.

Subject Examinations

Examination (and related course)	*Score*	*Min. Crs. Awd.*
American Government (none)	50	3
Analysis and Interpretation of Literature (ENGL 102)	51	3
Biology, General (ZOOL 101)	49	6
Calculus and Elementary Functions (MATH 140)	50	6
Chemistry, General (CHEM 103)	48	6
College Algebra (None)	49	3
College Algebra - Trigonometry (MATH 115)	49	3
College Composition, with essay questions (ENGL 101) and passing essay	51	3
Introductory Macroeconomics (ECON 201)	50	3
Introductory Microeconomics (ECON 203)	50	3
Introductory Sociology (SOCY 100)	51	3
Psychology, General (PSYC 100)	50	3

3. **Credit by Examination** - (Departmental Proficiency Examinations) College Park Departmental Proficiency Examinations, customarily referred to as "credit by examination," are offered in a number of courses, and are comparable to comprehensive final examinations in those courses. These examinations are given at a time mutually agreed upon by the student and the department. Department offices will provide information regarding place and administration, type of examination, and material which might be helpful in preparing for examinations.

An undergraduate who passes a departmental proficiency examination is given credit and quality points toward graduation in the amount regularly allowed in the course, provided such credits do not duplicate credit obtained by some other means (e.g., earned in high school or another college).

Although the mathematics and foreign language departments receive the most applications for credit by examination, most departments will provide examinations for a number of their courses. Any student who wishes more information or to apply for an examination should inquire at the Undergraduate Advising Center, Room 1117, Hornbake Library.

Policies governing credit by examination are as follows:

1. The applicant must be formally admitted to the University of Maryland at College Park. Posting of credit, however, will be delayed until the student is registered.
2. Departmental Proficiency Examinations may not be taken for courses in which the student has been registered beyond the schedule adjustment period (first ten day of classes).
3. Departmental Proficiency Examinations may not be used to change grades, including incompletes.
4. Application for credit-by-examination is equivalent to registration for a course; however, the following conditions apply:
   a. A student may cancel the application at any time prior to completion of the examination with no entry on his/her permanent record. (Equivalent to the schedule adjustment period.)
   b. The instructor makes the results of the examination available to the student prior to formal submission of the grade. Before final submission of the grade, a student may elect not to have this grade recorded. In this case, a mark of W is recorded. (Equivalent to the drop procedure.)
   c. No course may be attempted more than twice.
   d. The instructor must certify on the report of the examination submitted to the Office of Records and Registrations that copies of the examination questions or identifying information in the case of standardized examinations, and the student's answers have been filed with the chair of the department offering the course.
5. Letter grades earned on examinations to establish credit, if accepted by the student, are entered on the student's transcript and used in computing his/her cumulative grade point average. A student may elect to take an examination for credit on a "Pass-Fail" basis under the normal "Pass-Fail" regulations.

TRANSFER CREDIT

The Records Office posts all transfer credit that would be acceptable to any of the degree programs at UMCP. It is up to an academic advisor in the office of the dean of the college in which the student is enrolled to determine which transfer credits are applicable to the student's degree program. In general, credit from academic courses taken at institutions of higher education accredited by a regional accrediting association will transfer, provided that the course is completed with at least a grade of C and the course is similar in content and level to work offered at College Park. The title of courses accepted for transfer credit will be noted on the student's record; however, the grade will not. Transfer credit grades are not included in the UMCP grade point average calculation. See Chapter 2, Admissions, for additional information.

Off-Campus Courses and Transfer of Credit from Another Institution
Courses taken at another campus of the University of Maryland or at another institution concurrent with regular registration at the University of Maryland at College Park are treated as off-campus courses and may not be credited toward a degree without approval in advance by the dean of the college from which the student expects a degree. The same rule applies to off-campus registration in the summer program of another institution. Permission to enroll in off-campus courses must be requested for any course which will eventually be added to the College Park transcript. However, courses taken through the Consortium of Universities of the Washington Metropolitan Area are considered to be resident credit.

REQUIREMENTS FOR RETENTION

Academic retention is based solely on grade point average (GPA). The significance of the cumulative grade point average (cumulative GPA) varies according to the number of credits attempted. A minimum of 120 credits of successfully completed (not I, F, or W) course credits is required for graduation in any degree curriculum.

Semester Academic Honors (Dean's List) will be awarded to a student who completes within any given semester twelve or more credits (excluding courses with grades of P and S) with a semester GPA of 3.500 or higher. This notation will be placed on the individual's permanent record.

Satisfactory Performance applies to those students with a cumulative GPA between 4.000 and 2.000.

1. Students with cumulative GPA of less than 2.000 fall into three categories *Unsatisfactory Performance, Academic Warning and Academic Dismissal.* The notations Academic Warning and Academic Dismissal will be placed on the student's permanent record. The cumulative GPA that defines each of the categories varies according to the credit level as noted below.

Credit Level	*Unsatisfactory Performance*	*Academic Warning*	*Academic Dismissal*
0-13	*1.999-1.290*	*1.289-0.230*	*0.229-0.000*
14-28	*1.999-1.780*	*1.779-1.280*	*1.279-0.000*
29-56	*1.999-1.860*	*1.859-1.630*	*1.629-0.000*
57-74	*1.999-1.940*	*1.939-1.830*	*1.829-0.000*
75-more	----	*1.999-1.940*	*1.939-0.000*

2. Credits completed with grades of A, B, C, D and F, but not P and S, will be used in computation of the semester and cumulative GPA with values of 4.000, 3.000, 2.000, 1.000 and 0.000 respectively. Marks of I, P, S, W, and NGR will not be used in the computation of semester and cumulative GPA.
3. Students with an unsatisfactory performance for any semester will be urged in writing to consult their advisors.
4. Students on academic warning will have this fact noted on their transcripts and will be urged in writing to consult with their advisors prior to the beginning of the next semester. Students who receive an academic warning in any semester will not be allowed either to add or drop courses or to register during the semester following the receipt of the academic warning without seeing an advisor.
5. Any student with sixty credits or more attempted and who thereafter received academic warning for two consecutive semesters will be academically dismissed. Students who are academically dismissed will have this action entered on their transcript.
6. No student transferring to the University of Maryland at College Park from outside the University of Maryland will be subject to Academic Dismissal at the end of the first semester as long as the student obtains a cumulative GPA of 0.23 or more. (A student who would otherwise be subject to Academic Dismissal will receive an Academic Warning.) Thereafter, such a student will be subject to the normal standards of academic progress. This provision does not apply to students reinstated or readmitted to College Park.
7. A student who has been academically dismissed and who is reinstated will be academically dismissed again if minimum academic standard are not met by the end of the first semester after reinstatement (See Readmission and Reinstatement.) In the computation of the cumulative GPA, all credits attempted at the University of Maryland will be used.
8. Credits transferred, or earned during prior admissions terminating in academic dismissal or withdrawal and followed by readmission, will be applicable toward meeting credit requirements for a degree.
9. Under unusual circumstances, the Faculty Petition Board may set more rigorous requirements for the semester in which a reinstated student returns, or may allow a lengthened period (not to exceed two semesters) to reach the minimum or set academic standards.
10. Any appeal from the regulations governing academic warning or academic dismissal shall be directed to the Faculty Petition Board which shall be empowered to grant relief in unusual cases if the circumstances warrant such action.
11. A student may repeat any course; however no student may be registered for a course more than three times. If a student repeats a course in which he or she has already earned a mark of A, B, C, D, P, or S, the subsequent attempt shall not increase the total hours earned toward the degree. Only the highest mark will be used in computation of the student's cumulative average. Under unusual circumstances, the student's dean may grant an exception to this policy.

Dismissal of Delinquent Students. The University reserves the right to request at any time the withdrawal of a student who cannot or does not maintain the required standard of scholarship, or whose continuance in the University would be detrimental to his or her health, or to the health of others, or whose conduct is not satisfactory to the authorities of the University. Additional information about the dismissal of delinquent students may be found in the Code of Student Conduct, Appendix C of this catalog.

GRADUATION AND DEGREE REQUIREMENTS

The University of Maryland at College Park awards the following degrees: Bachelor of Arts, Bachelor of General Studies (no admission to program as of Fall 1988), Bachelor of Music, Bachelor of Science, Master of Applied Anthropology, Master of Architecture, Master of Arts, Master of Business Administration, Master of Education, Master of Fine Arts, Master of Library Science, Master of Music, Master of Public Management, Master of Public Policy, Master of Science, Doctor of Education, Doctor of Musical Arts, and Doctor of Philosophy. Students in specified two-year curricula may be awarded certificates.

Graduation Applications

Each candidate for a degree or certificate must file a formal application with the Office of Records & Registrations. The deadline for application is the end of the schedule adjustment period for the semester in which the student plans to graduate, or at the end of the first week of the second summer session for August degrees. In all cases, graduation applications must be filed at the beginning of the student's final semester before receiving a degree.

If all degree requirements are not completed during the semester in which the graduation application was submitted, it is the responsibility of the student to file a new graduation application with the Office of Records and Registrations at the beginning of a subsequent semester when all degree requirements may be completed. The graduation application fee is a one-time, non-refundable charge. If a subsequent application is filed for the same degree, the fee will not be charged a second time.

Degree Requirements

The requirements for graduation vary according to the character of work in the different colleges, schools, departments and academic units. It is the responsibility of the colleges, schools, departments and other academic units to establish and publish clearly defined degree requirements. Responsibility for knowing and meeting all degree requirements for graduation in any curriculum rests with the student. Specific degree requirements are listed in this catalog under the college and/or department as appropriate.

Each student should check with the proper academic authorities no later than the close of the junior year to ascertain his or her standing with respect to advancement toward a degree. For this purpose, each student should be sure to retain a copy of the semester grade reports issued by the Office of Records and Registrations at the close of each semester.

1) Residency requirement - Final Thirty-Hour Rule

a. All candidates for College Park degrees should plan to take their final thirty credits in residence since the advanced work of their major study normally occurs in the last year of the undergraduate program. Included in these thirty semester hours will be a minimum of fifteen semester hours in courses numbered 300 or above, including at least twelve semester hours required in the major field (in curricula requiring such concentrations).
b. A student who at the time of graduation will have completed thirty hours in residence at College Park may, under unusual circumstances, be permitted to take a maximum of six of the final thirty credits of record at another institution. In such cases, written permission must be obtained in advance from the dean of the academic unit from which the student expects to receive the degree. Exceptions beyond six credits will be made only under highly unusual circumstances; requests for an exception must be made through the Dean's office to the Office of the Vice President for Academic Affairs.
c. For students in the combined three-year preprofessional programs, the final thirty hours of the ninety-hour program at College Park must be taken in residence.

2) Enrollment in Majors

A student must be enrolled in the major program from which he or she plans to graduate, when registering for the final fifteen hours of the baccalaureate program. This requirement also applies to the third year of the combined, preprofessional degree programs.

3) Credit Requirements

While several undergraduate curricula require more than 120 credits, no baccalaureate curriculum requires fewer than 120. No baccalaureate degree will be awarded in instances in which fewer than 120 credit hours have been earned. It is the responsibility of each student to familiarize himself or herself with the requirements of specific curricula. The student is urged to seek advice on these matters from the departments, colleges, or the Office of Undergraduate Studies.

To earn a baccalaureate degree from the University of Maryland at College Park, a minimum of thirty credits must be taken in residence.

4) Grade Point Average

An overall C (2.00) grade point average is required for graduation in all curricula.

Second Degrees and Second Majors

a. *Second Degree Taken Sequentially.* A student who has completed requirements for and has received one baccalaureate degree and who wishes to earn a second baccalaureate degree from College Park must satisfactorily complete the requirements of the second degree and enough additional credits so that the total, including all applicable credits earned at College Park or elsewhere, is at least 150 credits. In no case, however, will a second baccalaureate degree be awarded to

a student who has not completed thirty credits in residence at College Park. Approval of the second degree will not be granted when there is extensive overlap between the two programs.

b. *Second Degree Taken Simultaneously.* A student who wishes to receive simultaneously two baccalaureate degrees from College Park must satisfactorily complete a minimum of 150 credits (180 credits if one of the degrees is in Special Education). The regularly prescribed requirements of both degree programs must be completed. As early as possible and, in any case, no later than one full semester (preferably one year) before the expected date of graduation, the student must file with the departments or programs involved, as well as with the appropriate deans, formal programs showing the courses to be offered to meet the major, supporting area, college, and general education program requirements. If two colleges are involved in the double degree program, the student must designate which college is responsible for the maintenance of records. Approval of the second degree will not be granted when there is extensive overlap between two programs.

c. *Second Major.* A student who wishes to complete a second major in addition to his or her primary major of record must obtain written permission in advance from the appropriate deans. As early as possible, but in no case later than one full semester before the expected date of graduation, the student must file with the departments or programs involved and with the appropriate deans, formal programs showing the courses to be offered to meet requirements in each of the majors and supporting areas as well as the college and general education program requirements. Approval will not be granted if there is extensive overlap between the two programs. Students enrolled in two majors simultaneously must satisfactorily complete the regularly prescribed requirements for each of the programs. Courses taken for one major may be counted as part of the degree requirements for the other and toward the requirements for the general education requirements as appropriate. However, no course used in either curriculum to satisfy a major, supporting area, or college requirement may be used to satisfy the general education requirements. If two colleges are involved in the double major program, the student must designate which college is responsible for the maintenance of records.

COMMENCEMENT HONORS

Honors for excellence in scholarship are determined by the highest two percent (Summa cum Laude), the next three percent (Magna cum Laude), and the following five percent (cum Laude) of the students of the preceding three commencements of each degree-granting unit. To be eligible for this recognition, a total of at least sixty semester credits earned at the University of Maryland is required. Of these sixty credits, at least thirty credits must have been earned at College Park. The computation of the cumulative grade point average does not include grades for courses taken during the last semester of registration before graduation, although the hours earned for that semester will apply toward the sixty-hour requirement. No student with a grade point average less than 3.000 will be considered.

Election to Phi Beta Kappa

Organized in 1776, Phi Beta Kappa is the oldest and most widely respected academic honorary society in the United States. Invitation to membership is based on outstanding scholastic achievement in studies of the liberal arts and sciences. Student members are chosen entirely on the basis of academic excellence; neither extra-curricular leadership nor service to the community is considered. Election is held only once a year, in the spring semester.

The process for election to Phi Beta Kappa involves the annual review in March by a select committee of faculty members representing the humanities, social sciences and natural sciences. The committee reviews transcripts of all juniors and seniors with qualifying grade point averages (irrespective of the graduation month of such a student). Whether a student qualifies for membership in Phi Beta Kappa depends on the quality, depth and breadth of the student's record in liberal education courses. The final decision for election rests with the resident faculty members of Phi Beta Kappa. There is no application procedure for election to Phi Beta Kappa.

Requirements for selection to membership in the campus chapter of Phi Beta Kappa include:

1. **Residence.** At least 60 hours taken at the College Park campus of the University of Maryland.
2. **Liberal Courses.** At least 90 hours in liberal courses in the arts and sciences (where "liberal" means academic, rather than professional or technical).
3. **Required Courses.** One semester of mathematics and two semesters at least at the elementary level of one foreign language. The mathematics requirement must be fulfilled by college credit hours; the foreign language requirement may be fulfilled by a proficiency examination.
4. **Grade Point Average.** For seniors a grade point average of at least 3.5 in all liberal courses taken, for juniors a grade point average of at least 3.75 in such courses.
5. **Distribution.** Normally the credit hours presented for Phi Beta Kappa must contain at least nine liberal hours in each of the three areas of humanities, social sciences and natural sciences. Students with more challenging courses and moderately high grade point averages are preferred by the committee to those with higher grade point averages but a narrow range of courses. Minimal qualifications in more than one area may preclude election to Phi Beta Kappa.

Recommended criteria include:

1. One laboratory course in the natural sciences.
2. Regular grades (rather than pass/fail) in (a) mathematics and foreign language courses, and (b) distribution areas in which the number of courses taken is minimal.
3. Some traditional social sciences and humanities courses that require written essays and papers. (Note that internships may be counted as professional courses and not as liberal courses.)
4. Courses in at least two of the required areas to be taken at the College Park campus, especially if courses are transferred from other institutions without chapters of Phi Beta Kappa.

Meeting the above requirements does not guarantee election to Phi Beta Kappa. The judgment of the resident faculty members of Phi Beta Kappa on the quality, depth, and breadth of the student's record is the deciding factor in every case.

If you have any questions about criteria for election to Phi Beta Kappa (including equivalency examinations in foreign languages), please visit the Phi Beta Kappa Office, Room 2103 Mathematics Building or telephone (301) 454-3303.

AWARDS AND PRIZES. In addition to the campus honors described above, many colleges, departments, programs, corporations, and individuals sponsor awards and prizes to graduating seniors. The following is a selected list of recently-awarded prizes:

Milton Abramowitz Memorial Prize in Mathematics. A prize is awarded annually to a junior or senior student majoring in mathematics who has demonstrated superior competence and promise for future development in the field of mathematics and its applications.

Agricultural Alumni Award. Presented to a senior who during his or her college career contributed most toward the advancement of the College of Agriculture.

Agricultural Engineering Outstanding Senior Award is presented to a student in Agricultural Engineering on the basis of scholastic performance, participation in ASAE National Student Branch, and other extracurricular activities.

Alpha Rho Chi Medal. Awarded annually by the Alpha Rho Chi fraternity for architecture and the allied professions to a graduating student of architecture who has made a distinctive contribution to school life, embodying the ideals of professional service and leadership.

American Institute of Aeronautics and Astronautics Award. Free memberships in the institute for one year and cash prizes for the best paper presented at a student branch meeting and for the graduating aeronautical senior with the highest academic standing.

James R. Anderson Award in Geography. Awarded at each spring commencement to an outstanding undergraduate student in geography for high academic achievement.

Appleman-Norton Award in Botany is presented to a senior major in Botany who is considered worthy on the basis of demonstrated ability and excellence in scholarship.

Citizenship Prize for Men. An award presented annually as a memorial to the late President Emeritus H. C. Byrd to that male member of the senior class who during his collegiate career has most nearly typified the model citizen and has contributed significantly to the general advancement of the interest of the University.

Citizenship Prize for Women. An award presented annually as a memorial to Sally Sterling Byrd to that female member of the senior class who during her collegiate career has most nearly typified the model citizen and has contributed significantly to the general advancement of the interest of the University.

Delta Sigma Pi Scholarship Key. Awarded to the senior with the highest overall scholarship in the college of Business and Management.

Education Alumni Award. Presented to the outstanding senior man and senior woman in the College of Education.

Engineering Alumni Chapter Award is presented to a senior in the College of Engineering for outstanding scholarship and service to the College of Engineering

Eta Kappa Nu Outstanding Senior Award is presented to a senior in Electrical Engineering for outstanding scholastic achievement and service to the society and department

Charles B. Hale Dramatic Awards. The University Theatre recognizes annually the male and female members of the senior class who have done the most for the advancement of dramatics at the University

P. Arne Hansen Memorial Award. Presented to the Outstanding Departmental Honors Student in Microbiology

William Randolph Hearst Foundation Awards. Categories general news, features, editorials, investigative reporting, spot news.

Institute of Electrical and Electronics Engineering Award. The Washington Section of the Institute of Electrical and Electronics Engineers defrays the expenses of a year's membership as an associate in the Institute for the senior doing the most to promote student branch activities.

Joe Elbert James Memorial Award. Gold watch annually awarded to a graduating senior in horticulture on basis of scholarship and promise of future achievement.

Maryland-Delaware-DC Press Association Annual Citation. Presented to the outstanding senior in journalism.

Pi Tau Sigma Memorial Award. Presented to the senior in Mechanical Engineering who has made the most outstanding contribution to the University

Public Relations Society of America. The Maryland Professional Chapter of PRSA presents an annual citation to the outstanding senior majoring in public relations.

The Shipleys of Maryland Award. Cash award given to the graduating History major with the best academic record.

Sigma Alpha Omicron Award. This award is presented a senior student majoring in microbiology for high scholarship, character and leadership.

Sigma Delta Chi Citation. For Achievement at the University of Maryland.

Sigma Delta Pi Award. Presented by the Department of Spanish and Portuguese Languages to the graduating member of Sigma Delta Pi (National Spanish Honor Society) who has rendered the greatest service to the Delta (University of Maryland) Chapter.

Awards for Excellence in the Study of Spanish. Presented by the Department of Spanish and Portuguese Languages to the three members of the graduating class who have most distinguished themselves as students of Spanish language and literature.

James P. Wharton Art Award Fund. This fund was endowed by the former head of the Art Department, Colonel James P. Wharton. An annual award of $200.00 is given to a senior for special achievement in Studio Art.

Athletic Awards

Atlantic Coast Conference Award. A plaque is awarded each year to a senior in each conference school for excellence in scholarship and athletics.

The Alvin L. Aubinoe Basketball Trophy. This trophy is given in memory of Alvin L. Aubinoe for the senior who has contributed most to the squad during the time the student was on the squad.

The Alvin L. Aubinoe Track Trophy. This trophy is given in memory of Alvin L. Aubinoe for the senior who has contributed most to the squad during the time the student was on the squad.

Louis W. Berger Trophy. Presented to the outstanding senior baseball player.

Geary F. Eppley Award. Offered by Benny and Hotsy Alperstein to the graduating male senior who during his three years of varsity competition, lettered at least once and attained the highest overall scholastic average.

Halbert K. Evans Memorial Track Award. This award, given in memory of "Hermie" Evans of the Class of 1940, by his friends, is presented to a graduating member of the track team.

Charles P. McCormick Trophy. This trophy is given in memory of Charles P. McCormick to the senior member of the swimming teach who has contributed most to swimming during the swimmer's collegiate career.

TEKE Trophy. This trophy is offered by the Maryland Chapter of Tau Kappa Epsilon Fraternity to the student who during four years at the University has rendered the greatest service to football

Air Force ROTC Awards

Air Force Association Award to the outstanding senior cadet who has excelled in field training, possesses individual leadership characteristics, ranks in the upper ten percent of his or her class in the University and the upper five percent of his or her ROTC class, and has outstanding promotion potential.

Air Force Historical Foundation Award to an AFROTC cadet/commissionee in recognition of leadership, citizenship, academic achievement, and military performance. Award is a $1,000 scholarship for graduate study in a field beneficial to Air Force and American Aviation Technology.

American Defense Preparedness Association Award. Presented to the outstanding senior cadet who has an academic average which places him or her in the upper half of his or her entire class at the University, has received no grade in the advanced ROTC courses less than B, is in upper twenty percent of total senior enrollment at the University of Maryland, has participated actively in athletics and/or campus activities, and has demonstrated outstanding leadership qualities.

American Fighter Aces Award recognizes the outstanding graduating cadet pilot in each geographical area based on his or her performance and achievements as an AFROTC cadet and his or her performance in the flight instruction program.

American Legion Outstanding Senior Cadet. This award is sponsored by the American Legion, Department of Maryland, and is presented to the cadet described as the "Outstanding ROTC Senior."

American Legion ROTC Military Excellence Awards to a senior (Gold award) and junior (Silver award) in the upper twenty-five percent of his or her AFROTC class and demonstrating outstanding qualities in military leadership, discipline, and character.

American Legion ROTC Scholastic Award to an outstanding senior (Gold award) and junior (Silver award) in the upper ten percent of his or her class in the University and have demonstrated high qualities in military leadership.

Commandant of Cadets Award to a junior or senior cadet for outstanding performance as a staff officer. This cadet most successfully exemplifies the "complete staff officer."

Daughters of the American Revolution Award to the senior cadet who has demonstrated high qualities of dependability, good character, adherence to military discipline, and leadership ability.

Disabled American Veterans Cup to the senior cadet who has displayed outstanding leadership, scholarship, and citizenship.

Professor of Aerospace Studies Award to the senior cadet who has distinguished himself or herself through excellence of leadership in the Corps of Cadets.

Reserve Officer Association Awards to the senior cadet (Gold award) junior cadet (Silver award), and sophomore cadet (Bronze award) demonstrating outstanding academic achievement in AFROTC subject matter and highest officer potential. Ribbons of merit are presented to the top ten percent of the freshman and the sophomore cadets.

Society of American Military Engineers Award to recognize twenty junior or senior cadets nationally displaying outstanding scholastic achievement and leadership and majoring in the field of engineering.

ACADEMIC DISHONESTY

The Academic Dishonesty Policy Statement is currently being revised by the Campus Senate to reflect the recent reorganization of the academic units at College Park. The following interim procedure is to be in effect until such time as this policy statement is revised by the Senate. For the nondepartmentalized colleges, the Dean for Undergraduate Studies shall assume the responsibilities formerly held by the division provost. For the departmentalized colleges, the dean of the college shall assume the responsibilities formerly held by the division provost.

Academic dishonesty is prohibited by the Code of Student Conduct (see Appendix C of this catalog for the complete text), and may result in a serious penalty, including expulsion from the University. The Code defines academic dishonesty as follows:

a. *Cheating.* Intentionally using or attempting to use unauthorized material, information or study aids in academic exercises.

b. *Fabrication.* Intentional and unauthorized falsification or invention of any information or citation in an academic exercise.
c. *Facilitating Academic Dishonesty.* Intentionally or knowingly helping or attempting to help another to commit an act of academic dishonesty.
d. *Plagiarism.* Intentionally or knowingly representing the words or ideas of another as one's own in any academic exercise.

In cases involving charges of academic dishonesty, the instructor in the course or person in charge of the activity shall report to the instructional department chairperson or dean (if there is no chairperson) any information received and the facts within his or her knowledge. If the chairperson of the instructional department determines that there is any sound reason for believing that academic dishonesty may be involved, he or she shall refer the matter to the dean. The dean will check the Office of Judicial Programs records to determine if the student has any record of prior offenses involving academic dishonesty. The dean will then consult with the student involved, and if the alleged academic dishonesty is admitted by the student and is his or her first offence, the dean may resolve the charges, provided the penalty is accepted by the student in writing.
In such cases the dean will make a written report of the matter, including the action taken, to the student's dean and to the Office of Judicial Programs. Disciplinary penalties not involving a course grade are subject to review and approval by the Office of Judicial Programs.

If the case is not resolved in the above manner, the dean of the instructional department will appoint an ad hoc Committee of Academic Dishonesty. The committee will consist of a chairperson from the faculty of the college administered by the dean, one undergraduate student, and one member from the faculty of the student's college. If the student's dean and the dean administering the instructional department are the same, a second member of the faculty of the college concerned is appointed. If within jurisdiction of the Dean for Undergraduate Studies that dean will appoint the ad hoc Committee on Academic Dishonesty consisting of two faculty, one serving as chairperson, and one student.

The dean of the instructional department will refer the specific report of alleged academic dishonesty to this ad hoc committee, which will hear the case. The hearing procedures before the committee are set forth in the document "Preparing for an Academic Dishonesty Hearing" issued by the Office of Judicial Programs. The *Code of Student Conduct* provides that any act of academic dishonesty, including a first offence, will place the student is jeopardy of "suspension from the University, unless specific and significant mitigating factors are present" (part 11). A repeated violation, or the more serious first offense, may result in expulsion. Also, disciplinary records for any act of academic dishonesty are retained in the Office of Judicial Programs for at least three years from the date of final adjudication.

The chair of the committee will report its findings of facts and recommended penalties, if any, to the dean of the instructional department. The sanctions specified by the panel are regarded as recommendations to the dean, who will inform the student and the Office of Judicial Programs of the outcome in writing. Also, if it has been determined that the student should be suspended or expelled, the dean should advise the student of the right to file an appeal in accordance with Parts 38 and 40 through 45 of the *Code of Student Conduct*. Disciplinary penalties not involving a course grade are subject to review and approval by the Office of Judicial Programs.

Students accused of academic dishonesty should request a copy of the University document "Preparing for an Academic Dishonesty Hearing" Contact the Office of Judicial Programs at 454-2927

TO REPORT ACADEMIC DISHONESTY, DIAL 454-4746 AND ASK FOR THE "CAMPUS ADVOCATE."

6 The University Studies Program

Dean for Undergraduate Studies: Dr. Kathryn Mohrman
1115 Hornbake Library, 454-6231

The Campus Senate and the Board of Regents have approved a new General Education Program. Implementation of this program is currently under way. It will not be in place until — at the earliest — Fall, 1990.

The University Studies Program is the general education requirement at the University of Maryland College Park. This program must be completed by all students entering in May 1980 and thereafter, with eight or fewer credits from this or any other college. The requirements of the University Studies Program represent a third of the total academic work required for graduation and are designed to be spread throughout the student's four years of baccalaureate study. It is the purpose of the program that students be prepared to become productive, aware, and sensitive members of society, capable not only of understanding their world and the many kinds of people in it, but also of taking responsibility for their own decisions and their own lives.

The program has three major parts: Fundamental Studies, Distributive Studies, and Advanced Studies These areas of study will provide students with the intellectual skills and conceptual background basic to an understanding of any subject matter and to an awareness of general modes of understanding the world

The *Fundamental Studies* section of the program is intended to establish the student's ability to participate in the discourse of the University through demonstrated mastery of written English and mathematics. These requirements are to be completed early in the student's program in order to serve as a foundation for subsequent work.

The *Distributive Studies* requirements are intended, through study in particular disciplines, to acquaint students with the different ways of analyzing and talking about the world that characterize each discipline. Students must select two courses from each of four broad categories: culture and history; natural sciences and mathematics; literature and the arts; and social and behavioral sciences.

In *Advanced Studies* courses, students have the opportunity to examine how the different intellectual approaches observed in the Distributive Studies courses compare to each other or may be used in complementary ways to analyze and solve problems. Thus, courses in Advanced Studies require students to exercise critical thinking skills in the analysis of complex problems. To meet the Advanced Studies requirements, students must choose one course from the Development of Knowledge series and one course from the Analysis of Human Problems series.

Requirements in the Distributive Studies and the Advanced Studies are to be met by choosing courses from the list of courses approved for the University Studies Program. The outline of the program and the list of approved courses are given below.

Statement on Statute of Limitations for GEP and GUR

Undergraduate students returning or transferring to College Park after August 1987 will no longer have the option of completing general education requirements under either the General Education Program or the General University Requirements.

Thereafter, following any substantive change in general education requirements, undergraduate students returning or transferring to College Park after a separation of five continuous calendar years must follow the requirements in effect at the time of re-entry. Exception will be granted to those students who at the time of separation had completed sixty per cent (60%) of general education requirements then in effect.

Students from Maryland public community colleges shall be treated as if registration dates were concurrent with enrollment at College Park.

Other exceptions to this policy may be appealed to the Dean of Undergraduate Studies.

Outline of the University Studies Program

A course taken to satisfy college, major, and/or supporting area requirements may also be used to satisfy University Studies Program requirements if it appears on the list of approved courses for this program

Courses chosen on meet University Studies Program requirements may **not** be taken on a Pass-Fail basis.

I. Fundamental Studies — nine credits (Except for ENGL 391 or 393, the Fundamental Studies requirement must be attempted by the time the student has completed thirty credit hours and passed successfully by the time the student has completed sixty credit hours.)
   A. English Composition — 6 credits
      1. ENGL 101 — 3 credits
         a. Students with TSWE (SAT verbal subtest) below 330 take ENGL 101A.
         b. Students with SAT verbal 600 or above are exempt.
         c. Students with AP score of 4 or 5 are exempt.
         d. ENGL 101X — 3 credits. Students for whom English is a second language may register for ENGL 101X instead of ENGL 101. To register for ENGL 101X, a student must present one of the following: (1) a score of 550 on the TOEFL, or (2) a score of 220 on the Comprehensive English Language Test (CELT) administered at the College Park Campus by the Maryland English Institute, or (3) successful completion of the Institute's semi-intensive course in English. Based on scores from either the TOEFL or CELT a student might be required to complete a program of English language instruction for non-native speakers through the Maryland English Institute **before** being allowed to register for ENGL 101X.
      2. JUNIOR WRITING (3 credits)
         ENGL 391 — Advanced Composition
         ENGL 391X — Advanced Composition (ESL)
         ENGL 392 — Advanced Composition (pre-law)
         ENGL 393 — Technical Writing
         ENGL 393X — Technical Writing (ESL)
         ENGL 394 — Business Writing
         ENGL 395 — Technical Writing (pre-med and health careers)

   (Any of these courses will fulfill the junior level writing requirement.)
      a. Must be taken AFTER student has completed 56 credit hours (i.e., has reached junior standing).
      b. Students with an A in ENGL 101 (but NOT 101A or 101X) are exempt.
      c. Students who score 700 or better on the SAT Verbal will NOT be exempt from the Junior Writing requirement.

   B. Mathematics — 3 credits MATH 110 (or the modular equivalent MATH 102 - 3 - 4) or MATH 115.
      1. Students with the following minimum examination scores or higher are exempt.
         a. SAT: 600.
         b. College Board Achievement Test in Mathematics, Level I or II: 600.
         c. Advanced Placement Examinations, Calculus AB or BC: 3.
         d. Any CLEP Subject Examination in Mathematics: 60.
      2. Successful completion of any of the following entry courses of a higher level than MATH 110: MATH 111, 140, 141, 150, 151, 220, 221, 240, 241, 246, 250, 251; STAT 100, 250.

II. Distributive Studies-minimum: 24 credits. Courses to meet these requirements must be chosen from a list approved by the University Studies Committee. (See the *Schedule of Classes* for this list.)
   A. Culture and History (minimum: 6 credits, 2 courses).
   B. Natural Sciences and Mathematics (minimum: 6 credits, 2 courses). One course must be a laboratory science.
   C. Literature and the Arts (minimum: 6 credits, 2 courses). Courses must be taken in two different departments.
   D. Social and Behavioral Sciences (minimum: 6 credits, 2 courses).

III. Advanced Studies-six credits. This requirement may be fulfilled only after student has completed fifty-six credit hours.

It is intended that, in fulfilling this requirement, students choose courses that offer a contrast to the major rather than supplementing it.

Courses to fulfill these requirements must be from two *different* departments outside the department of the student's major.

Courses to meet these requirements must be chosen from a list designated by the University Studies Committee as suitable for satisfying each of the requirements. (See the *Schedule of Classes* for this list.)

A. The Development of Knowledge (three credits, one course). Courses which focus on the creation, discovery, exploration, testing, and evaluation of knowledge in one or more disciplines.

B. The Analysis of Human Problems (three credits, one course). Courses which focus on the application of knowledge from one or more disciplines to the study of important human problems.

Special Note for International Students:

Special requirements in English for international students are discussed above

Approved Courses

Listed below are the courses approved by the University Studies Program Committee as of December 1988. Students must choose courses from this list in order to met the requirements of the Program.

Distributive Studies (A) Culture and History

AASP 100 — Introduction to Afro-American Studies
AASP 200 — African Civilizations
AASP 202 — Black Culture in the United States
AMST 201 — Introduction to American Studies I
AMST 205 — Material Aspects of American Life
AMST 207 — Contemporary American Cultures
ANTH 298A — Chesapeake: An Archaeology of Maryland
ANTH 298B — The First Americans
CHIN 101 — Intensive Elementary Chinese I
CHIN 102 — Elementary Spoken Chinese
CHIN 103 — Elementary Written Chinese
CHIN 201 — Intermediate Spoken Chinese I
CHIN 202 — Intermediate Written Chinese I
CHIN 203 — Intermediate Spoken Chinese II
CHIN 204 — Intermediate Written Chinese II
CLAS 170 — Greek and Roman Mythology
EDPA 210 — Historical and Philosophical Perspectives on Education
ENGL 260 — Introduction to Folklore
FMCD 330 — Family Patterns
FREN 101 — Elementary French I
FREN 102 — Elementary French II
FREN 103 — Review of Elementary French
FREN 121 — Accelerated French I
FREN 122 — Accelerated French II
FREN 203 — Intermediate French
FREN 311 — French Conversation: Contemporary Issues
FREN 312 — French Conversation: Current Cultural Events
FREN 370 — Aspects of French Civilization
GEOG 150 — World Cities
GEOG 202 — The World in Cultural Perspective
GEOG 321 — Maryland and Adjacent Areas
GEOG 324 — Europe — Contemporary Landscapes
GEOG 325 — The Soviet Union
GEOG 326 — Africa
GEOG 327 — South Asia
GEOG 331 — Southwest Asia
GERM 101 — Elementary German I
GERM 102 — Elementary German II
GERM 103 — Review of Elementary German
GERM 104 — Intermediate German
GERM 141 — Elementary Yiddish I
GERM 142 — Elementary Yiddish II
GERM 144 — Intermediate Yiddish I
GERM 145 — Intermediate Yiddish II
GERM 280 — German-American Cultural Contrast
GERM 281 — Women in German Society and Literature (in English)
GERM 282 — Germanic Mythology
GERM 381 — German Civilization I
GERM 382 — German Civilization II
GERM 383 — The Viking Era
GERM 384 — The Age of Chivalry
GERM 389C — Selected Topics in Germanic Area Studies (The Ancient Celts)
GERM 389I — Selected Topics in Germanic Area Studies (Ancient India)
GREK 101 — Elementary Greek I
GREK 102 — Elementary Greek II
GREK 203 — Intermediate Greek
GVPT 240 — Political Ideologies
HEBR 111 — Elementary Hebrew I
HEBR 112 — Elementary Hebrew II
HEBR 211 — Intermediate Hebrew I
HEBR 212 — Intermediate Hebrew II
HEBR 333 — Hebrew Civilization
HEBR 334 — Hebrew Civilization
HIST 101 — Great Ideas, Events and Personalities in History
HIST 115 — Modern Business History
HIST 130 — The Ancient World
HIST 131 — The Medieval World
HIST 132 — The Rise of the West 1500-1789
HIST 133 — Modern Europe 1789-Present
HIST 144 — The Humanities I
HIST 145 — The Humanities II
HIST 156 — History of the United States to 1865
HIST 200 — Introduction to the History of Science
HIST 201 — Science and Technology in World History
HIST 210 — Women in America to 1880
HIST 211 — Women in America Since 1880
HIST 234 — History of Britain to 1485
HIST 235 — History of Britain, 1461-1714
HIST 236 — History of Britain, 1688 to Present
HIST 237 — Russian Civilization
HIST 250 — Latin American History I (to 1810)
HIST 251 — Latin American History II (1810 to present)
HIST 280 — Islamic Civilization
HIST 282 — History of the Jewish People I (to late Middle Ages)
HIST 283 — History of the Jewish People II
HIST 284 — East Asian Civilization I (to 1700)
HIST 285 — East Asian Civilization II (since 1700)
HIST 290 — African Civilization
HONR 118 — Freshman Honors Colloquium, Cultural and Historical
HONR 318 — Honors Seminar, Cultural and Historical
ITAL 101 — Elementary Italian I
ITAL 102 — Elementary Italian II
ITAL 121 — Accelerated Italian I
ITAL 122 — Accelerated Italian II
ITAL 203 — Intermediate Italian
ITAL 204 — Review Grammar and Composition
ITAL 211 — Intermediate Conversatioln
ITAL 370 — Italian Civilization
JAPN 101 — Elementary Japanese I
JAPN 102 — Elementary Japanese II
JAPN 201 — Intermediate Spoken Japanese I
JAPN 202 — Intermediate Written Japanese I
JAPN 203 — Intermediate Spoken Japanese II
JAPN 204 — Intermediate Written Japanese II
JAPN 217 — Buddhism and Japanese Literature in Translation
LATN 101 — Elementary Latin I
LATN 102 — Elementary Latin II
LATN 120 — Intensive Latin
LATN 203 — Intermediate Latin I
LATN 204 — Intermediate Latin II
LATN 220 — Intermediate Intensive Latin
PHED 293 — History of Sport in America
PHIL 100 — Introduction to Philosophy
PHIL 110 — Plato's *Republic*
PHIL 243 — Philosophy of Rural Life
PHIL 250 — Philosophy of Science I
PORT 101 — Elementary Portuguese I
PORT 102 — Elementary Portuguese II
PORT 203 — Intermediate Portuguese
RUSS 101 — Elementary Russian I
RUSS 102 — Elementary Russian II
RUSS 281 — Russian Culture
RUSS 282 — Russian Language and Soviet Culture
SPAN 101 — Elementary Spanish I
SPAN 102 — Elementary Spanish II
SPAN 103 — Review of Elementary Spanish
SPAN 203 — Intermediate Spanish
SPAN 204 — Review of Oral and Written Spanish
SPAN 205 — Intermediate Conversation
SPAN 311 — Advanced Conversation I
SPAN 312 — Advanced Conversation II
SPAN 325 — Spanish Civilization I
SPAN 326 — Spanish Civilization II
SPAN 346 — Latin American Civilization I
SPAN 347 — Latin American Civilization II
TEXT 345 — History of Costume I
TEXT 347 — History of Costume II
TEXT 363 — History of Textiles
THET 310 — The American Theatre

Distributive Studies (B) Natural Sciences and Mathematics Lab Sciences

AGRO 100 & 102 — Crops Laboratory and Crop Production
AGRO 302 — General Soils
ASTR 100 & 110 or 111 — Introduction to Astronomy and Astronomy Laboratory
BIOL 101 and 102 — Organization and Interrelationships in the Biological World. & Laboratory in Biology

BIOL 105 — Principles of Biology I
BIOL 106 — Principles of Biology II
BOTN 100 — General Botany for Non-science Students
CHEM 102 — Chemistry of Man's Environment
CHEM 103 — General Chemistry I
CHEM 104 — Fundamentals of Organic and Biochemistry
CHEM 105 — Principles of General Chemistry I
CHEM 111 — Chemistry in Modern Life
CHEM 113 — General Chemistry II
CHEM 115 — Principles of General Chemistry II
ENTM 205 — Principles of Entomology
GEOG 170 & 171 — Maps and Map Use, and Maps and Map Use Laboratory
GEOG 201 & 211 — The Geography of Environmental Systems and The Geography of Environmental Systems Laboratory
GEOL 100 & 110 — Physical Geology and Physical Geology Laboratory
MICB 100 — Basic Microbiology
MICB 200 — General Microbiology
PHED 360 — Physiology of Exercise
PHYS 102 and 103 — Physics of Music and Laboratory
PHYS 106 and 107 — Light Perception, Photography and Visual Phenomena and Light Perception, Photography and Visual Phenomena Laboratory
PHYS 114 — Energy and the Environment
PHYS 117 — Introduction to Physics
PHYS 121 — Fundamentals of Physics I
PHYS 122 — Fundamentals of Physics II
PHYS 141 — Principles of Physics I
PHYS 142 — Principles of Physics II
PHYS 221 — General Physics for Science Teachers I
PHYS 222 — General Physics for Science Teachers II
PHYS 262 & 262A (lab) — General Physics: Heat, Electricity and Magnetism
PHYS 263 & 263A (lab) — General Physics: Waves, Relativity and Quantum Physics
PHYS 272 & 275 — Introductory Physics: Thermodynamics, Electricity & Magnetism; Lab: Mechanics and Thermodynamics
PHYS 273 & 276 — Introductory Physics: Electricity & Magnetism, Waves Optics Lab: Electricity & Magnetism
ZOOL 210 — Animal Diversity
ZOOL 212 — Ecology, Evolution and Behavior

Non-lab Sciences and Mathematics
AGRO 105 — Soil and the Environment
ANSC 101 — Principles of Animal Science
ANTH 101 — Introduction to Anthropology
ASTR 100 — Introduction to Astronomy
ASTR 181 — Introductory Astronomy and Astrophysics I
ASTR 182 — Introductory Astronomy and Astrophysics II
ASTR 350 — Astronomy and Astrophysics
BIOL 101 — Organization and Interrelationships in the Biological World
BOTN 103 — Human Aspects of Plant Biology
BOTN 211 — Ecology and Mankind
CHEM 107 — Chemistry and Man
ENAG 232 — Water, A Renewable Resource
ENES 120 — Noise Pollution
ENES 121 — The Man-Made World
ENTM 100 — Insects
GEOG 140 — Coastal Environments
GEOG 170 — Maps and Map Use
GEOG 201 — The Geography of Environmental Systems
GEOL 100 — Physical Geology
GEOL 101 — Physical Geology for Science Students
GEOL 102 — Historical Geology
GEOL 120 — Environmental Geology
HESP 305 — Anatomy and Physiology of the Speech Mechanism
HONR 128 — Freshman Honors and Colloquium, Natural Sciences and Mathematics
HONR 328 — Honors Seminar, Natural Sciences and Mathematics
HORT 100 — Introduction to Horticulture
MATH 105 — Mathematical Ideas
MATH 111 — Introduction to Math II
MATH 140 — Calculus I
MATH 141 — Calculus II
MATH 150 — Calculus I (Honors)
MATH 151 — Calculus II (Honors)
MATH 210 — Elements Mathematics
MATH 211 — Elements Geometry
MATH 220 — Elementary of Calculus I
MATH 221 — Elementary of Calculus II
MATH 240 — Introduction to Linear Algebra
MATH 241 — Calculus III
MATH 246 — Differential Equations for Scientists and Engineers
MATH 250 — Calculus III (Honors)
MATH 251 — Calculus IV (Honors)
METO 100 — Weather and Life
MICB 322 — Microbiology and the Public
NUTR 100 — Elements of Nutrition
PHIL 271 — Symbolic Logic I
PHYS 101 — Contemporary Physics
PHYS 102 — Physics of Music
PHYS 106 — Light, Perception, Photography and Visual Phenomena
PHYS 111 — Physics in the Modern World I
PHYS 112 — Physics in the Modern World II
PHYS 161 — General Physics: Mechanics and Particle Dynamics
PHYS 171 — Introductory Physics: Mechanics
PSYC 206 — Developmental Biopsychology
PSYC 301 — Biological Basis of Behavior
SOCY 201 — Introductory Statistics for Sociology
STAT 100 — Elementary Statistics and Probability
STAT 250 — Introduction to Statistical Models
ZOOL 181 — Life in the Oceans

Distributive Studies (C) Literature and the Arts

Note: Courses must be taken in different departments.

APDS 104 — Survey of Design History
ARCH 170 — An Introduction to the Built Environment
ARCH 222 — History of Western Architecture
ARTH 100 — Introduction to Art
ARTH 260 — History of Art I
ARTH 261 — History of Art II
ARTH 262 — Arts of Asia
ARTH 284 — Introduction to African Art
CHIN 213 — Chinese Poetry in English
CHIN 314 — Chinese Fiction and Drama in Translation
CHIN 315 — Modern Chinese Literature in Translation
CHIN 441 — Traditional Chinese Fiction
CHIN 442 — Modern Chinese Fiction
CLAS 270 — Greek Literature in Translation
CLAS 271 — Roman Literature in Translation
DANC 200 — Introduction to Dance
ENGL 201 — World Literature: Homer to the Renaissance
ENGL 202 — World Literature: The Renaissance to the Present
ENGL 205 — Introduction to Shakespeare
ENGL 211 — English Literature from Beginnings to 1800
ENGL 212 — English Literature from 1800 to Present
ENGL 221 — American Literature: The beginning to 1865
ENGL 222 — American Literature: 1865 to Present
ENGL 234 — Introduction to Afro-American Literature
ENGL 240 — Introduction to Literary Forms: Fiction, Poetry, Drama
ENGL 241 — Introduction to the Novel
ENGL 242 — Fact and Fiction: Forms of Non-Fiction Prose
ENGL 243 — Introduction to Poetry and Poetics
ENGL 244 — Introduction to Drama
ENGL 245 — Introduction to Film as Literature
ENGL 246 — The Short Story
ENGL 247 — Literature of Fantasy
ENGL 250 — Women in Literature
ENGL 271 — Honors World Literature: Homer to the Renaissance
ENGL 272 — Honors World Literature: Renaissance to the 20th Century
ENGL 301 — Critical Methods in the Study of Literature
ENGL 302 — English Medieval Literature in Translation
ENGL 304 — Major Works of Shakespeare
ENGL 305 — Shakespeare and His Contemporaries An Introduction
ENGL 345 — Twentieth Century Poetry of Britain and America
ENGL 462 — Folksong and Ballad
FREN 250 — Readings in French Literature
FREN 340 — Modern French Literature in Translation
FREN 350/350H — Advanced Reading in French
FREN 351/351H — French Literature from the Revolution to the Present
FREN 352/352H — French Literature from the Middle Ages to the Revolution
GERM 220 — Introduction to German Literature
GERM 285 — German Film and Literature
GREK 204 — Intermediate Greek (Homer)
HEBR 223 — The Hebrew Bible: Narrative
HEBR 224 — The Hebrew Bible: Poetry and Rhetoric
HEBR 231 — Introduction to Jewish Literature in Translation
HEBR 322 — Israeli Literature in Translation
HONR 138 — Freshman Honors Colloquium: Literature and the Arts
HONR 338 — Honors Seminar: Literature and the Arts
HORT 160 — Introduction to the Art of Landscaping
ITAL 251 — Introduction to Italian Literature
ITAL 351 — Italian Literature from Dante to the Renaissance
ITAL 352 — Italian Literature from the Renaissance to the Present
ITAL 376 — The Italian Opera Libretto
MUSC 130 — Survey of Music Literature
MUSC 140 — Music Fundamentals I

MUSC 141 — Music Fundamentals II
MUSC 215 — The Art of the Performer
RTVF 314 — Introduction to the Film
RUSS 328A — Nineteenth Century Russian Literature in Translation I
RUSS 328B — Nineteenth Century Russian Literature in Translation II
SPAN 221 — Readings in Spanish
SPAN 321 — Survey of Spanish Literature I
SPAN 322 — Survey of Spanish Literature II
SPAN 323 — Survey of Spanish American Literature I
SPAN 324 — Survey of Spanish American Literature II
THET 110 — Introduction to the Theatre
WMST 250 — Women, Art and Culture

Distributive Studies (D) Social and Behavioral Studies

AMST 203 — Popular Culture in America
AMST 204 — Film and American Culture Studies
AMST 206 — Business and American Culture Studies
ANTH 102 — Introduction to Anthropology
ANTH 221 — Man and Environment
ANTH 241 — Introduction to Archaeology
ANTH 271 — Language and Culture
AREC 240 — Environmental and Human Ecology
ARSC 310 — Management and Leadership I
ARSC 320 — National Security Forces in Contemporary American Society I
BSOS 200 — Introduction to Applied Behavioral and Social Science
CJUS 100 — Introduction to Criminal Justice
CNEC 100 — Introduction to Consumer Economics
CRIM 220 — Criminology
ECON 105 — Economics of Social Problems
ECON 201 — Principles of Economics I
ECON 203 — Principles of Economics II
ECON 205 — Fundamentals of Economics
ECON 307 — Development of Economic Ideas
ECON 310 — Evolution of Modern Capitalism in Western Europe and the United States
ECON 311 — American Economic Development
EDHD 306 — A Study of Human Behavior
EDHD 330 — Human Development and Societal Institutions
EDPA 201 — Education in Contemporary American Society
FMCD 201 — Concepts in Community Development
FMCD 250 — Decision Making in Families and Communities
FOOD 110 — Food for People
FOOD 300 — Economics of Food Consumption
GEOG 100 — Introduction to Geography
GEOG 110 — The World Today: A Regional Geography
GEOG 130 — Developing Countries
GEOG 203 — Economic Geography
GVPT 100 — Principles of Government and Politics
GVPT 170 — American Government
GVPT 220 — Introduction to Political Behavior
GVPT 273 — Introduction to Environmental Policy
GVPT 300 — International Political Relations
GVPT 343 — Political Themes in Contemporary Literature
HESP 120 — Introduction to Linguistics
HIST 157 — History of the U.S. Since 1865
HIST 275 — Law and Constitutionalism in American History
HLTH 230 — Introduction to Health Behavior
HLTH 285 — Controlling Stress and Tension
HONR 148 — Freshman Honors Colloquium: Social and Behavioral Sciences
HONR 348 — Honors Seminar: Social and Behavioral Sciences
JOUR 100 — Introduction to Mass Communication
LING 200 — Introduction to Linguistics
LING 240 — Language and Mind
PHED 287 — Sport and American Society
PHED 350 — Psychology of Sport
PHED 385 — Motor Learning and Skilled Performance
PHIL 140 — Contemporary Moral Issues
PHIL 245 — Political and Social Philosophy I
PSYC 100 — Introduction to Psychology
PSYC 221 — Social Psychology
PSYC 310 — Perception
PSYC 335 — Personality and Adjustment
PSYC 353 — Adult Psychopathology
PSYC 355 — Child Psychology
RECR 130 — History and Introduction to Recreation
RTVF 124 — Mass Communication in 20th Century Society
SOCY 100 — Introduction to Sociology
SOCY 105 — Introduction to Contemporary Social Problems
SOCY 230 — Sociological Social Psychology
SOCY 300 — American Society
SOCY 327 — Introduction to the Study of Deviance
SOCY 331 — Work, Bureaucracy and Industry
SOCY 341 — Inequality in American Society
SPCH 350 — Foundation of Communication Theory
URBS 100 — Introduction to Interdisciplinary Urban Studies
URBS 210 — Behavioral and Social Dimensions of the Urban Community
URBS 220 — Environmental and Technological Dimensions of the Urban Community
URBS 320 — The City and the Developing National Culture of the United States
WMST 200 — Introduction to Women's Studies

Advanced Studies (A) Development of Knowledge

AMST 418E — Cultural Themes in America: the American Image of Africa
AMST 418K — Cultural Themes in America: Race in America: Theory and Policy
AMST 428A — American Cultural Eras: Social Dramas in American Cultural History
AMST 429B — Perspectives on Popular Culture: Science Fiction in American Culture
AMST 432 — Literature and American Society
ANTH 371 — Introduction to Linguistics
ANTH 389C — Culture and Personality
ANTH 401 — Cultural Anthropology: Principles and Processes
ANTH 451 — Archaeology of the New World
ARHU 308B — An Interdisciplinary Analysis of Scandinavian Civilization
ARHU 309A — Forms and Forces of Human Experience: An Interdisciplinary Exploration — Philosophies of Art
ASTR 300 — Stars and Stellar Systems
ASTR 330 — Solar System Astronomy
ASTR 340 — Galaxies and the Universe
ASTR 380 — Life in the Universe
BCHM 361 — Origins of Biochemistry
CJUS 330 — Contemporary Legal Policy Issues
CLAS 320 — Women in Classical Antiquity
CLAS 470 — Advanced Greek and Roman Mythology
ECON 402 — Business Cycles
EDCI 488N — Learning Styles and Learning Environments
EDMS 451 — Introduction to Educational Statistics
(Students who have credit for PSYC 200, ECON 421, BMGT 230, GVPT 422, GEOG 305 or SOCY 201 cannot receive credit for EDMS 451. Students who wish to use EDMS 451 in lieu of one of the above to satisfy departmental requirements must receive approval from their departmental academic advisor.)
ENGL 320 — English Romantic Literature
ENGL 379O — Special Topics in Literature: Language and Gender: Male/Female Difference in Language Use
ENGL 379E — Special Topics in Literature: Film Analysis — The Rhetoric of Fictional Worlds
ENGL 379I — Special Topics in Literature: Science and Literature
ENGL 379J — Special Topics in Literature: Interpreting the Bible
ENGL 379K — Special Topics in Literature: Private Lives
ENGL 379L — Special Topics in Literature: The Great Divide: The Modern and Pre-Modern Worlds
ENGL 379M — Special Topics in Literature: Britain in the Age of Revolution, 1760-1820
ENGL 379V — Special Topics in Literature: Modern Poetry and the Visual Arts
ENGL 385 — English Semantics
ENGL 412 — Literature of the 17th Century: 1600-1660
ENGL 432 — American Literature, 1865-1914: Realism & Naturalism
ENGL 453 — Literary Criticism
ENGL 477 — Studies in Mythmaking
ENGL 479R — Special Topics in English and American Literature after 1800: Readers, Writers, and Rhetoric
ENGL 489A — Special Topics in English Language: The Language of Advertising
ENGL 489C — Special Topics in English Language: The Language of the Law
GEOL 301 — Evolution in Geology
GERM 348 — Yiddish Culture
GERM 349A — Yiddish Literature in Translation: Yiddish Culture — The Holocaust in Film and Literature
GERM 479B — Selected Topics in Germanic Philology: Language and Science
GNED 301 — The Arts and the Sciences
GVPT 441 — History of Political Theory: Ancient and Medieval
GVPT 442 — History of Political Theory — Medieval to Recent
GVPT 443 — Contemporary Political Theory
HEBR 498B — Special Topics in Hebrew: Issues in Jewish Ethics and Law
HEBR 498R — Special Topics in Hebrew: Reconstructing Ancient Civilizations: the Case of Mesopotamia
HIST 311A — Approaches to the Past: Approaches to European Social History
HIST 311B — Approaches to the Past: Historiography

HIST 311S — Approaches to the Past: Science and History — Archaeoastronomy & the History of Science
HIST 401 — The Scientific Revolution: From Copernicus to Newton
HIST 402 — The Development of Modern Physical Science: From Newton to Einstein
HIST 403 — Twentieth Century Revolutions in Physical Sciences
HIST 407 — History of Technology
HIST 412 — Readings in Psycho-History
HLTH 498T — Ways of Knowing about Human Stress and Tension
HONR 368 — Honors Seminar: Development of Knowledge
HSAD 451 — Gaming Simulation in Design I
ITAL 410 — The Italian Renaissance
LING 440 — Grammars and Cognition
MATH 310 — Introduction to Mathematical Reasoning
MATH 406 — Introduction to Number Theory
MATH 430 — Euclidean and Non-Euclidean Geometries
MUSC 340 — Music Literature Survey I
NUTR 335 — History of Nutrition
PHED 362 — Philosophy of Sport
PHIL 308A — Studies in Contemporary Philosophy: Philosophy of Literature and Film
PHIL 308C — Studies in Contemporary Philosophy: Philosophy and Computers
PHIL 308D — Studies in Contemporary Philosophy: Discovery & Analogy in Science
PHIL 308E — Studies in Contemporary Philosophy: Philosophy of History
PHIL 310 — Ancient Philosophy
PHIL 328B — Marxist Philosophy
PHIL 331 — Philosophy of Art
PHIL 332 — Philosophy of Beauty
PHIL 334 — Philosophy of Music
PHIL 408D — Topics in Contemporary Philosophy: Philosophical Issues in Art History
PHIL 408E — Topics in Contemporary Philosophy: Aesthetic Theory & Philosophy of Criticism
PHIL 408F — Topics in Contemporary Philosophy: Contemporary French and German Philosophy
PHIL 408S — Topics in Contemporary Philosophy: The Nature of Scientific Understanding
PHIL 428A — Origins of the Modern Scientific World-View
PHIL 447 — Philosophy of Law
PHIL 450 — Scientific Thought I
PHIL 451 — Scientific Thought II
PHIL 452 — Philosophy of Physics
PHIL 453 — Philosophy of Science II
PHIL 454 — Philosophy of Economics
PHIL 455 — Philosophy of the Social Sciences
PHIL 456 — Philosophy of Biology
PHIL 458A — Topics in the Philosophy of Science: Philosophy of Agricultural Science
PHIL 458X — Topics in the Philosophy of Science: Causation and Causal Thinking
PHIL 465 — Philosophy of Psychology
PHIL 472 — Philosophy of Mathematics
PHYS 420 — Principles of Modern Physics
PHYS 421 — Introduction to Modern Physics
PHYS 490 — History of Modern Physics
PHYS 499F — Special Topics in Physics — Physics for Managers & Analysts: Twentieth Century Physics
SOCY 403 — Intermediate Sociological Theory
SOCY 498K — Sociology of Knowledge
SPCH 450 — Classical and Medieval Rhetorical Theory
THET 495 — History of Theatrical Theory and Criticism
WMST 400 — Theories of Feminism
ZOOL 301 — Biological Issues and Scientific Evidence
ZOOL 328F — Selected Topics in Zoology: The Brain

Advanced Studies (B) Analysis of Human Problems

AEED 323 — Developing Youth Programs
AGRO 303 — International Crop Production
AMST 330 — Critics of American Culture
AMST 418B — Cultural Themes in America: Culture and Mental Disorders in Modern America
AMST 418C — Cultural Themes in America: The American Environment: Conservation and Energy
AMST 418D — Cultural Themes in America: Growing Up American
AMST 428B — American Cultural Eras: American Film Culture in the 1960s
ANTH 389B — Medicine, Health and Culture
AREC 365 — World Hunger: Population and Food Supplies
AREC 433 — Food and Agricultural Policy
AREC 453 — Natural Resource Economics and Public Policy
ARHU 308A — Post World War II Japan through Film and Fiction
CHEM 374 — Technology, Energy and Risk
CLAS 374 — Greek Literature in Translation
CNEC 310 — Consumer Economics and Public Policy
CNEC 410 — Consumer Finance
CNEC 431 — The Consumer and the Law
CNEC 435 — Economics of Consumption
CNEC 437 — Consumer Behavior
ECON 315 — Economic Development of Underdeveloped Areas
ECON 451 — Public Choice and Public Policy
ECON 490 — Survey of Urban Economic Problems and Policies
EDCI 381 — Schools and Children
EDCP 420 — Education and Racism
EDCP 462 — The Disabled Person in American Society
EDHD 413 — Adolescent Development
EDHD 445 — Guidance of Young Children
EDIT 476 — Application of Technology to Societal Problems
EDIT 488T — Issues Confronting Families Past and Future: A Multidisciplinary Approach
EDPA 400 — The Future of the Human Community
EDPA 488G — Technology, Social Change and Education
ENAG 315 — Energy: Its Effects on Agriculture and Food
ENGL 379F — Special Topics in Literature: Coping with Change
ENGL 379N — Special Topics in Literature: Literature of Sentiment and Sentimentality
ENGL 379Q — Special Topics in Literature: More's Utopia and Utopian Vision
ENGL 379R — Special Topics in Literature: Different Views of the Chesapeake Bay
ENGL 379S — Special Topics in Literature: Changing Ideas of the City in Western Literature
ENGL 379T — Special Topics in Literature: On Argument
ENGL 479A — Selected Topics in English and American Literature After 1800: Ideal and Real Communities in 19th Century American Literature
ENTM 303 — International Pesticide Problems and Solutions
FMCD 381 — Poverty and Affluence Among Low Income Families and the Community
FMCD 431 — Family Crises and Intervention
FMCD 487 — Legal Aspects of Family Problems
FMCD 497 — The Child and the Law
FREN 478B — Themes and Movements of French Literature in Translation: Autobiographical Fiction by Francophone Women Writers
FREN 478C — Themes of Movements of French Literature in Translation: Conflict Between Individual and Society in French Literature
FREN 479A — Masterworks of French Literature in Translation: The Age of Anxiety — The Literature of Existentialism and the Absurd
FREN 479D — Masterworks of French Literature in Translation. Ideologies and Relations between the Sexes
GEOG 434 — Agricultural and Rural Development
GEOG 456 — Social Geography of Metropolitan Areas
GEOG 462 — Water Resources and Water Resource Planning
GEOG 463 — Geographic Aspects of Pollution
GEOG 464 — Energy Resources and Planning
GERM 389J — Topics in Germanic Culture: Honor as a Theme in Western Literature
GERM 389R — Topics in Germanic Culture: Reason and Faith
GNED 300 — Perspectives on Nuclear War
GVPT 403 — Law, Morality and War (cross-listed with PHIL 446)
GVPT 405 — Defense Policy and Arms Control
GVPT 432 — Civil Rights and the Constitution
GVPT 457 — American Foreign Relations
GVPT 462 — Urban Politics
GVPT 471 — Women and Politics
HIST 312A — Crisis and Change in the United States: The Changing Urban Scene
HIST 312B — Crisis and Change in the United States: Dynamics of Federal Indian Policy
HIST 313A — Crisis and Change in European Society: Freedom and Authority
HIST 314A — Crisis and Change in the Middle East and Africa: Nationalism and Nation Building in the Middle East
HIST 316A — Crisis and Change in Latin America: Slavery and Race Relations
HIST 458A — Selected Topics in Women's History: Victorian Women
HLTH 476 — Death Education
HLTH 490 — Theories of Children's Love and Peace Behaviors
HONR 378 — Honors Seminar: Analysis of Human Problems
ITAL 411 — Dante
NUTR 425 — International Nutrition
NUTR 498F — Development and Modification of Food Habits
PHIL 308B — Philosophy of Life
PHIL 308F — Philosophical Aspects of Feminism
PHIL 340 — Making Decisions
PHIL 342 — Moral Problems in Medicine
PHIL 408A — Topics in Contemporary Philosophy: Analysis and Design of Legal & Moral Institutions

PHIL 408L — Topics in Contemporary Philosophy: Racial and Sexual Discrimination
PHIL 441 — History of Ethics
PHIL 446 — Law, Morality and War (cross-listed with GVPT 403)
PHYS 318N — Topics in Contemporary Physics: the Risks of Nuclear Power
PSYC 354 — Cross-Cultural Psychology
SOCY 305 — Scarcity and Modern Society
SOCY 325 — Sex Roles
SOCY 333 — Technology and Society
SOCY 427 — Deviant Behavior
SOCY 431 — Formal and Complex Organizations
SOCY 441 — Social Stratification and Inequality
SOCY 460 — Sociology of Work
SOCY 464 — Military Sociology
SOCY 498A — Medical Sociology
SOCY 498N — Sociology of Nuclear War
SOCY 498R — Work, Family, Community and Friendship: Issues in Social Identity and Well Being
SPCH 324 — Communication and Sex Roles
ZOOL 346 — Human Genetics and Society
ZOOL 381 — Natural History and the Chesapeake Bay

*This list includes all courses approved by the University Studies Program Committee as suitable for satisfying requirements of the program. Since all courses approved are not offered every semester, students should consult the *Schedule of Classes* each semester for the most current list.

7 Colleges and Schools

COLLEGE OF AGRICULTURE (AGRI)

1114 Symons Hall, 454-6332

Dean: Raymond J. Miller

Today's agriculture is a highly complex and extremely efficient industry that involves supplies and services used in agricultural production, and the marketing, processing and distribution of products to meet the consumers' needs and wants. The mission of the College of Agriculture includes the application of knowledge to the solution of some of the world's most critical problems concerning adequate amounts and quality of food and the quality of the environment in which we live. The College strives to provide an agricultural education that fits all the needs of today's advanced science of agriculture.

The College of Agriculture offers educational programs with a broad cultural and scientific base. Instruction in the College includes the fundamental sciences, and helps develop the foundation for its students' future roles by emphasizing the precise knowledge graduates must employ in the industrialized agriculture of today. Students are prepared for careers in agriculturally related sciences, technology and business. Course programs in specialized areas may be tailored to fit the particular needs of the individual student. Previous training in agriculture is not a prerequisite for study in the College of Agriculture; students with rural, suburban and urban backgrounds comprise the student body. Graduates of the College of Agriculture have an appropriate educational background for careers and continued learning after college in business, industry, production, teaching, research, extension, and many other professional fields.

The original College of the University of Maryland at College Park was chartered in 1856. The College of Agriculture has a continuous record of leadership in education since that date. It became the beneficiary of the Land-Grant in 1862. The College of Agriculture continues to grow and develop as part of the greater University, providing education and research activities enabling us to use our environment and natural resources to best advantage while conserving basic resources for future generations.

The College of Agriculture offers the following majors and programs of study:

Agricultural Extension Education
Agricultural and Resource Economics
Agricultural Chemistry
Agricultural Engineering
Agriculture — General Curriculum
Agronomy
Animal Sciences
Food Science Program
Horticulture
Institute of Applied Agriculture (two-year program)
Natural Resources Management Program
Combined Degree — College of Agriculture and Veterinary Medicine

Advantage of Location and Facilities. Educational opportunities in the College of Agriculture are enhanced by the nearby location of several research units of the Federal government. Teaching and research activities in the College are conducted with the cooperation of scientists and professional people in government positions. Of particular interest are the Agricultural Research Center at Beltsville, and the important National Agricultural Library there, and the U.S. Department of Agriculture Headquarters in Washington, D.C. Related research laboratories of the National Institutes of Health, military hospitals, National Aeronautics and Space Agency, and the National Bureau of Standards are also located in the vicinity of College Park. Interaction of faculty and students with personnel from these agencies is encouraged.

Instruction in the basic biological and physical sciences, social sciences and engineering principles is conducted in well-designed classrooms and laboratories. The application of basic principles to practical situations is demonstrated for the student in numerous ways. For example, modern greenhouses are available for teaching and research on a wide variety of plants, plant pests, and crop cultural systems. Dairy and beef cattle and flocks of poultry are available for teaching and research purposes.

In addition to on-campus facilities, several operating research farms, located in Central, Western, and Southern Maryland and on the Eastern Shore, support the educational programs in agriculture by providing locations where important crops, animals, and poultry can be grown and maintained under practical and research conditions. These farms add an important dimension to the courses offered in agriculture. Data from these operations and from cooperating producers and processors of agricultural products are utilized by students interested in economics, teaching, engineering, and conservation, as they relate to agriculture, as well as by those concerned with biology or management of agricultural crops and animals.

Requirements for Admission. Admission requirements to the College of Agriculture are the same as those of the University.

For students entering the College of Agriculture it is recommended that their high school preparatory course include English, 4 units; mathematics, 3 units; biological and physical sciences, 3 units; and history or social sciences, 2 units. Four units of mathematics should be elected by students who plan to major in agricultural engineering or agricultural chemistry.

Degree Requirements. Students graduating from the college must complete at least 120 credits with an average of 2.0 in all courses applicable toward the degree. Included in the 120 credits must be the following:

1. University Studies Program Requirements (40 credits)
2. College Requirements:
   a. Chemistry: Any one course of three or more credits in chemistry numbered 102 or higher (Agribusiness majors excepted);
   b. Mathematics or any course that satisfies the University Studies Program;
   c. Biological Sciences: Any one course carrying three or more credits selected from offerings of the Departments of Botany, Entomology, Microbiology, or Zoology. Courses marked "for non-science majors" cannot be used to satisfy degree requirements.
3. Requirements of the major and supporting areas, which are listed under individual program headings in chapter 8 of this catalog.

Required Courses. Courses required for students in the College of Agriculture are listed in each curriculum. The program of the freshman year is similar for all curricula. Variations in programs will be suggested based on students' interests and test scores.

Typical Freshman Program-College of Agriculture.

	Semester Credit Hours	
	I	*II*
ENGL 101	3	
BIOL 105	4	
MATH		3
ANSC 101	3	
BIOL 106		4
AGRO 100	2	
AGRO 102		2
SPCH 107		3
University Studies Program Requirement		3
Total	15	16

Advising. Each student in the College of Agriculture is assigned to a faculty advisor. Advisors normally work with a limited number of students and are able to give individual guidance.

Students entering the freshman year with a definite choice of curriculum are assigned to departmental advisors for counsel and planning of all academic programs. Students who have not selected a definite curriculum are assigned to a general advisor who assists with the choice of electives and acquaints students with opportunities in the curricula in the College of Agriculture and in other units of the University.

Financial Assistance: Scholarships. A number of scholarships are available for students enrolled in the College of Agriculture. These include awards by the Agricultural Development Fund, Arthur M. Ahalt Memorial Scholarship, Capitol Milk Producers Cooperative, Inc., George Earle Cook, Jr. Scholarship Fund, Dr. Ernest N. Cory Trust Fund, Ernest T. Cullen

Memorial Scholarship, Dairymen, Inc Scholarship, Delmarva Corn and Soybean Scholarship, Delaware-Maryland Plant Food Association, Mylo S Downey Memorial Scholarship, James R Ferguson Memorial Scholarship, Forbes Chocolate Leadership Award, Goddard Memorial Scholarship, Manasses J. and Susanna Grove Memorial Scholarship, Joe E James Memorial Award Fund, The Kinghorne Fund, Gary Lee Lake Memorial Scholarship, Maryland Holstein-Freisian Association Scholarship, Maryland Turfgrass Association, Maryland State Golf Association, Maryland and Virginia Milk-Producers, Inc , Dr Ray A Murray Scholarship Fund Paul R Poffenberger Scholarship Fund, R J Reynolds Tobacco Scholarship, Ralston Purina Company, J. Homer Remsberg Memorial Scholarship, The Schluderberg Foundation, The Ross and Pauline Smith Fund for Agriculture, Southern States Cooperative, Inc., the David N Steger Scholarship Fund, T B Symons Memorial Scholarship, Veterinary Science Scholarship, Winslow Foundation, and the Nicholas Brice Worthington Scholarship Fund

Honors Program. An Honors Program is approved for majors in agricultural and resource economics The objective of the Honors Program is to recognize superior scholarship and to provide opportunity for excellent students to broaden their perspective and to increase the depth of their studies The programs in honors are administered by Departmental Honors committees. Students in the College of Agriculture who are in the top 20% of their class at the end of their first year may be considered for admission into the Honors Program. Of this group up to 50% may be admitted

Sophomores or first semester juniors will be considered upon application from those students in the upper 20% of their class While application may be made until the student enters the sixth semester, early entrance into the program is recommended. Students admitted to the program enjoy certain academic privileges

Student Organizations. Students find opportunity for varied expression and growth in the several voluntary organizations sponsored by the College of Agriculture These organizations are Agriculture and Resource Economics Club, Agronomy Club, American Society of Agricultural Engineers, Animal Husbandry Club, Collegiate 4-H Club, Collegiate Future Farmers of America, Forestry Club, Equestrian Association, Food Science Club, Horticultural Club, INAG Club, Poultry Science Club, Soil Conservation Society of America - The University of Maryland Student Chapter, and Veterinary Science Club.

Alpha Zeta is a national agricultural honor fraternity Members are chosen from students in the College of Agriculture who have attained the scholastic requirements and displayed leadership in agriculture

The Agricultural Student Council is made up of representatives from the various student organizations in the College of Agriculture Its purpose is to coordinate activities of these organizations and to promote work that is beneficial to the college.

Research and Service Units

The Agricultural Experiment Station

The Maryland Agricultural Experiment Station, headquartered on the UMCP Campus, is a state-wide agency conducting research in laboratories at UMCP or UMES or at one of its nine field locations throughout Maryland It was established in 1888 to comply with the Hatch Act of 1887 authorizing the establishment of an agricultural experiment station at the Land Grant Colleges The station is supported by Federal funds, State appropriations, grants and contracts with State and Federal agencies, and by gifts or other support from individual and farm-related businesses and industry The research is performed by faculty with the assistance of research assistants, technicians, graduate and undergraduate students

The objective of the Experiment Station is to enhance all aspects of Maryland agriculture for the benefit of farmers, farm-related businesses and consumers through optimal utilization, conservation, and protection of soil and water resources For example, improved techniques of waste utilization or disposal require an examination of soil-moisture-plant relationships and plant, bird, or animal-environment relationships as well as studies of the applications of engineering for producing or maintaining the optimal environment for biological systems.

Genetic principles are studied and applied in the improvement of turf and ornamentals, vegetable crops, field crops, poultry dairy cattle and other animals Similarly, pathological principles are of concern in the improvement of methods of identification, prevention and or control of plant and animal diseases Studies of biological chemical and mechanical methods and improved chemical pest control in the field, forests food processing chain and the home are continuous Biochemistry plays an important role in evaluating the nutritional quality of crops produced the efficiency of feed conversion by poultry and animals, and the quality of plant and animal products for human consumption Research in progress is also concerned with improvement of processing systems to enhance food quality

The socio-economics of changing agricultural systems in terms of farm policy and rural development are also a major research area

Cooperative Extension Service

As part of the total University, the Cooperative Extension Service takes the University of Maryland to the people of Maryland, wherever they are In its role as the "off-campus, non-credit, out-of-classroom" arm of the University, it extends the classroom to all parts of the State With its uniquely effective educational delivery system, the Cooperative Extension Service helps people to help themselves, to define their problems, to evaluate reasonable alternatives, and to generate action to solve their problems To accomplish its mission, the Cooperative Extension Service works closely with teaching and research faculty of the University and with units of the University outside of agriculture, as well as state and federal agencies and private groups.

General administrative offices of the Maryland Cooperative Extension Service are located at the University of Maryland at College Park (UMCP) and the administration of the 1890 Program (an integral part of the total MCES effort) is based in offices at the University of Maryland Eastern Shore (UMES)

The Cooperative Extension Service was authorized by Congress in 1914 under the Smith-Lever Act and is funded by a three-way partnership Support comes from the Federal government for both 1862 and 1890 Land Grant institutions, and from the State and all twenty-three counties and Baltimore City in Maryland

Off-campus faculty, located in each county and in Baltimore City, are the "front lines" that deliver University resources in ways people can use them effectively These field faculty rely on campus based Cooperative Extension specialists at both UMCP and UMES to provide up-to-date, meaningful information and for aid in planning and conducting relevant educational programs Many of the Cooperative Extension Service faculty at the State level carry joint appointments with teaching and research, especially in the UMCP College of Agriculture and College of Life Sciences In each county and in Baltimore City competent extension agents conduct educational work in program areas consistent with the needs of the citizenry and as funds permit Through these efforts, local people are assisted in finding solutions to their problems

The Maryland Cooperative Extension Service delivers programs in eight major initiative areas These include: (1) agricultural profitability, (2) natural resources, (3) diet, nutrition, and health; (4) human capital development, (5) family economic stability, (6) agricultural technology for urban audiences; (7) profitability of marine industries; (8) enhancement of community vitality

The Cooperative Extension Service works in close harmony and association with many groups and organizations such as 4-H and homemakers' clubs, farmers' groups and cooperatives, agribusiness firms, watermen's organizations, civic and social organizations, governmental agency personnel, and elected officials, to multiply its effects In addition to work on farms and with agribusinesses, extension programs are aimed at many small and part-time farmers, rural non-farm and urban family consumers as well as watermen and marine-related businessmen. Both rural and urban families learn good food habits through the Expanded Food and Nutrition Education Program Thousands of young people gain leadership knowledge and experience and are provided practical education instruction in 4-H clubs and other youth groups The Service maintains a close working relationship with the Maryland Department of Agriculture and other State agencies and organizations More than 22,000 volunteers in Maryland give generously of their time and energy

Time-tested, informal educational methods used are farm and home visits, phone and office conferences, and structured events such as meeting, teaching institutes, workshops, and training conferences Teaching events include tours, field days, and demonstrations Short courses, workshops, and conferences in various fields of interest are conducted at UMCP and other locations throughout the State Indirect communications include circular letters, radio and television programs, newspaper articles and columns, articles in specialized publications, and exhibits to reach a statewide audience

The Cooperative Extension Service is committed to making its programs available to all people without regard to race, color, creed, marital status, personal appearance, age, national origin, political affiliation handicap, or sex

Combined Degree Curriculum — College of Agriculture and Veterinary Medicine

Students enrolled in the College of Agriculture who have completed at least ninety hours, including all University and college requirements, may qualify for the Bachelor of Science degree from the University of Maryland, College of Agriculture, upon successful completion in an accredited College of Veterinary medicine of at least thirty semester hours It is strongly recommended that the ninety hours include credits in animal science

Combined Degree Requirements

	Semester Credit Hours
University Studies Program Requirements*	40
ANSC 221 — Fundamentals of Animal Production	3

ANSC 211 — Anatomy of Domestic Animals	4
ANSC 212 — Applied Animal Physiology	4
BIOL 105 — Principles of Biology I	4
BIOL 106 — Principles of Biology II	4
Mathematics (must include at least 3 credits of Calculus)	6
CHEM 103 — General Chemistry I	4
CHEM 113 — General Chemistry II	4
CHEM 233 — Organic Chemistry I	4
CHEM 243 — Organic Chemistry II	4
PHYS 121 — Fundamentals of Physics I	4
PHYS 122 — Fundamentals of Physics II	4
Electives	10

*Includes eleven required credits listed above

For additional information, please contact the Associate Dean, VMRCVM, The University of Maryland, 1316 Animal Sciences Annex, College Park, MD 20742. Telephone (301) 454-4268

Institute of Applied Agriculture — Two-Year Program

The Institute of Applied Agriculture, a two-year college-level program offered as an alternative to the four-year program, prepares students for specific occupations in technical agriculture.

The Institute offers three major programs with eleven curriculum options:

I. Business Farming
   A. Farm Production and Management
   B. Agricultural Business Management
II. Ornamental Horticulture
   A. General Ornamental Horticulture
   B. Nursery Management
   C. Garden Center Management
   D. Greenhouse Management
   E. Florist Shop Management
   F. Landscape Management
III. Turfgrass Management
   A. Golf Course Management
   B. Lawn Care Management
   C. Lawn Care Technician (a one-year option)

The *business farming* program develops skills needed for farm operation or for employment in agricultural service and supply businesses such as feed, seed, fertilizer, and machinery companies, and farmers' cooperatives

Options in *ornamental horticulture* prepare students for employment in or management of greenhouses, nurseries, garden centers, florist shops, landscape maintenance companies or interior plantscaping companies.

The *turfgrass management* program concentrates on the technical and management skills needed to work as a golf course superintendent, to work in commericial or residential lawn care companies or in other turfgrass-related industries such as parks and cemeteries.

To enhance a student's occupational knowledge, the Institute requires participation in a Supervised Work Experience program, usually completed before taking second-year classes

A graduate of the Institute is awarded a Certificate in Agriculture specifying the student's area of specialization. Graduation requires the successful completion of sixty credit hours of a recognized program option, completion of Supervised Work Experience, and a 2.00 cumulative grade point average.

Though designed as a two-year terminal program, the Institute does not restrict continuing education. In general, all Institute courses are transferable to the UMCP and UMES campuses The extent to which the courses can be applied to a baccalaureate degree will depend on the individual department in which a student is planning to major

Courses Common to All Programs

COMM I-1 — Oral Communication*	3
COMM I-2 — Written Communication*	3
COMM I-3 — Employment Communication	1
AGMA I-1 — Agricultural Mathematics*	3
BOTN I-1 — Introduction to Plant Science*	3
HORT I-5 — Diseases of Ornamentals	3
AGRO I-1 — Soils and Fertilizers*	3
AGRO I-6 — Weed Control	3
AGRO I-11 — Pesticide Use and Safety	2
AGEN I-1A, B — Agricultural Mechanics I, II	2-2
AGEN I-2 — Power and Machinery	3
AGEN I-3A — Land Measurement and Surveying	1
AGEN 1-3B — Drainage Practices	1
AGEN 1-3C — Irrigation Practices	1
AGEN I 7 — Machine Operation Laboratory	1
AGEC I-2 — Business Law	3
AGEC I-4 — Business Operations	3
AGEC I-8 — Using Computers in Agriculture	2
AGEC I-10 — Personnel Management	3
AGEC I-12 — Agricultural Retailing	3
AGEC I-13 — Agricultural Finance	3
AGEC I-14 — Supervised Work Experience*	1

*Required for all management options

Courses for Farm Production and Agribusiness Management Majors

ANSC I-1 — Introduction to Animal Science	3
ANSC I-2 — Feeds and Feeding	3
ANSC I-3 — Animal Health	3
ANSC 242 — Dairy Production	3
ANSC I-8 — Livestock Management	3
ANSC I-10 — Seminar	1
ANSC 422 — Meats	3
ENTM 242 — Agricultural Insect Pests	3
AGRO I-7 — Grain Production	3
AGRO I-10 — Forage and Pasture Production	3
AGEC I-5 — Financial Records and Analysis	3
AGEC I-7 — Agricultural Marketing	3
AGEC I-11 — Farm Management	3

Courses for Ornamental Horticulture and Turfgrass Majors

HORT I-2 — Woody Ornamentals	3
HORT I-3 — Plant Propagation	3
HORT I-6 — Nursery Management	3
HORT I-7 — Greenhouse Management	2
HORT I-8 — Arboriculture	2
HORT I-10 — Floral Design I	2
HORT I-12 — Floral Crop Production	2
HORT I-13 — Floral Design II	2
HORT I-15 — Interior Plant Culture	2
HORT I-17 — Floral Design III	2
HORT I-18 — Woody Ornamentals II	2
HORT I-19 — Interior Ornamentals	2
HORT I-22 — Seminar	1
HORT I-26 — Landscape Design and Implementation	4
HORT I-27 — Landscape Management	4
ENTM I-2 — Pests of Ornamental Plants	3
AGRO I-2 — Turf Management	4
AGRO I-3 — Lawn Care Management	2
AGRO I-4 — Golf Course Management I	3
AGRO I-5 — Gold Course Management II	3

For additional information, write: Director, Institute of Applied Agriculture, The University of Maryland, College Park, MD 20742.

VIRGINIA-MARYLAND REGIONAL COLLEGE OF VETERINARY MEDICINE—MARYLAND CAMPUS

College of Agriculture
3222 Chemistry Building, 454-4631/4651

Professor and Associate Dean: Mohanty
Professor: Marquardt
Associate Professors: Dutta, Mallinson, Snyder, Stephenson
Assistant Professors: Carmel, Gorham, Ingling, Samal, Vakharia
Instructors: Bradley, Penny

The Virginia-Maryland Regional College of Veterinary Medicine is operated by the University of Maryland and the Virginia Polytechnic Institute and State University Each year, thirty Maryland and fifty Virginia residents comprise the entering class of a four-year program leading to a Doctor of Veterinary Medicine (DVM).

The first three years are given at Virginia Polytechnic Institute and State University in Blacksburg, Virginia The final year of instruction is given at several locations, including the University of Maryland, College Park

A student desiring admission to the College must complete the preveterinary requirements and apply for admission to the professional curriculum. Admission to this program is competitive, and open to all Maryland residents. All Maryland residents' applications are processed at the Department of Veterinary Medicine, University of Maryland, College Park

SCHOOL OF ARCHITECTURE (ARCH)

Architecture Building, 454-3427

Professor and Acting Dean: John W Hill
Associate Dean: Sachs
Assistant to the Dean: Lapanne
Professors: Bennett, Lewis, Loss, Lu, Schlesinger, Steffian
Associate Professors: Bechhoefer, DuPuy, Etlin, Fogle, Schumacher, Vann
Assistant Professors: Kelly, Thiratrakoolchai, Weiss
Lecturers: Drost, Dynerman, McInturff, Rixey, Wiedemann, Wilkes

The School of Architecture offers a four-year undergraduate program leading to the Bachelor of Science degree in architecture and a graduate program leading to the degree, Master of Architecture. The undergraduate major in architecture is designed to minimize the time required to complete the curriculum leading to the professional degree, Master of Architecture.

Students receive rigorous and comprehensive instruction from a faculty whose members are active in professional practice or research. Many faculty members have distinguished themselves across the professional spectrum and represent different approaches to architectural design. Their individual areas of expertise include architectural design and theory, history, architectural archaeology, technology, urban design and planning, and historic preservation. Visiting critics, lecturers, and the Kea distinguished professor augment the faculty; together they provide students with the requisite exposure to contemporary realities of architectural design.

The B.S. degree in architecture will qualify graduates to pursue a career in any of a number of fields, such as construction, real estate development, public administration, or historic preservation, or to continue in graduate work in professional fields such as architecture, urban planning, or law.

The graduate of the Master's degree program in architecture will be qualified to enter the profession of architecture in private practice, as an employee of a public agency at the local, state, or Federal level, or to enter any one of a number of other career paths.

The school's professional program is accredited by the National Architectural Accreditation Board, Inc., enabling graduates to qualify for licensure in all 50 states, and by reciprocal agreement, in several foreign countries.

Entrance Requirements. Admission to the School of Architecture is selective. Students are normally admitted to the undergraduate major in architecture after completing 56 credits of general and prerequisite work. Early admission is possible directly from high school for outstanding students who meet one of the following standards: (1) 3.5 GPA in high school **and** combined SAT score of 1200; (2) National Merit Scholarship finalist; or (3) recipient of Maryland Distinguished, Banneker, Francis Scott Key Scholarship or equivalent award. Such students need not submit the portfolio described below.

Prior to admission, students not admitted directly to the school may enroll in a two year pre-architecture program, but must also declare an alternate major. Pre-architecture is open to any UMCP student and provides a program for the first two years that includes the basic requirements of the University Studies Program plus other pre-architecture requirements.

The School of Architecture normally accepts transfer credits from regionally accredited four-year institutions. Transfer credits for technical and professional courses, however, are normally accepted only from institutions that are also accredited by the National Architectural Accrediting Board (NAAB).

Admission. Fall application deadline for student admission is February 1. A 3.0 GPA is normally recommended for admission to the School of Architecture.

In addition to the required high school and college transcripts, letters of recommendation, and other information, a portfolio of creative work must be submitted by all transfer and pre-architecture student applicants. The required portfolio of student work may include copies of drawings, photographs, and other evidence of creative work, submitted in an 8 1/2" x 11" format such as, for example, a standard three-ring notebook. The portfolio should be submitted to the Director of Admissions, School of Architecture. (Please see the more detailed information available from the School of Architecture. The portfolio will be returned **only if** requested, in which case a self-addressed, stamped mailing envelope should be included with the portfolio for this purpose.)

Curriculum Requirements: *Pre-Architecture.* In the first two years of college, pre-architecture students should adhere to the following curriculum:

	Credit Hours
USP -University Studies Program	28
ENGL 101 - Introduction to Writing	3
MATH 220 - Elementary Calculus I	3
ARCH 170 - Introduction to the Built Environment	3
MATH 221 - Elementary Calculus II (recommended)	3
PHYS 121 - Fundamentals of Physics I	4
ARCH 220 - History of Architecture I	3
ARCH 242 - Drawing I	2
PHYS 122 - Fundamentals of Physics II	4
ARCH 221 - History of Architecture II	3
Total Credits	56

Curriculum Requirements: *Bachelor of Science, Major in Architecture.*
If admitted after completing 56 credits, students are expected to complete the following requirements for a total of 121 credits.

	Credit Hours
Third Year	
ARCH 400 - Architecture Studio I	6
ARCH 375 - Architectural Construction and Materials	3
ARCH 4xx - Arch. History/Area A**	3
ARCH 401 - Architecture Studio II	6
ARCH 460 - Site Analysis and Design	3
ARCH 343 - Drawing II Line Drawing	2
ENGL 391 - Advanced Composition	3
USP Requirements	6
Total	32
Fourth Year	
ARCH 402 - Architecture Studio III	6
ARCH 445 - Visual Analysis of Architecture	3
ARCH 312 - Architectural Structures I	3
ARCH 313 - Thermal and Acoustical Technology in Buildings	3
ARCH 403 - Architecture Studio IV	6
ARCH 454 - Theory of Urban Form	3
ARCH 412 - Architectural Structures II	3
ARCH 415 - Illumination, Electrical and Systems Technology in Building	3
ARCH 4xx - Arch. History/ Area B**	3
Total	33
Total Credits*	121

*Courses are to be taken in sequence as indicated by Roman numerals in course titles.

** Architecture history courses: Area A: ARCH 422, 423, 432, and 436. Area B: ARCH 433, 434, and 420.

Special Resources and Opportunities. The school is housed in a modern, air-conditioned building providing work stations for each student, a large auditorium, and seminar and classroom facilities. A well-equipped woodworking and model shop, darkroom facilities, a lab equipped with testing machines and various instruments used in studying the ambient environment, and computer terminal facilities are also provided. The Architecture Library, one of the finest in the nation, contains some 26,000 volumes and 150 current periodicals. A special collection room of 12,000 books includes 5,000 volumes on world expositions. The National Trust Library for Historic Preservation is also housed within the school and contains 11,000 volumes and 450 periodical titles. A visual resources facility includes a reserve slide collection of 220,000 slides on architecture, landscape architecture, urban planning, architectural science, and technology as well as audio-visual equipment for classroom and studio use.

The school provides learning experiences through CADRE Corporation, a nonprofit Center for Architectural Design and Research, which provides an organizational framework for faculty and students to undertake contract research and design projects appropriate to the school's fundamental education mission. CADRE Corporation projects include building and urban design, urban studies, building technology, historic preservation, architectural archaeology, studies in energy conservation, or other work for which the school's resources and interests are uniquely suited.

Summer programs include the Caesarea Ancient Harbor Excavation Project (CAHEP), an ongoing land and underwater excavation in Israel at the harbor of Herod the Great at Caesarea Maritima. In addition, summer workshops for historic preservation are sponsored by the school each year in Cape May, N.J., a designated national historic landmark district, and Kiplin Hall in North Yorkshire, England. Students may earn direct credit doing hands-on restoration work and by attending lectures by visiting architects, preservationists, and scholars.

Course Code Prefix — ARCH

COLLEGE OF ARTS AND HUMANITIES (ARHU)

1101 Francis Scott Key Hall

Dean: James Lesher (Acting) 454-6790
Office of Student Affairs: 454-2737
Academic Advisors: 454-2737
Internship Coordinator: 454-2737/6797
Computer Facility: 3101 Francis Scott Key Hall, 454-1814

The College of Arts and Humanities embraces a heterogeneous group of disciplines, all of which value the development of critical thinking, fluent expression in writing and speech, sensitivity to ethical and aesthetic standards, and a complex understanding of history and culture. Departments and programs in Arts and Humanities, while they have strong individual identities, are also involved in interdisciplinary studies. Thus students will find, for example, courses in the Department of English that approach literature from political perspectives, courses in the Department of History that rely on feminist perspectives, courses in the Department of Art History that study African cultures and so on.

Examples of the special opportunities available to students in this richly variegated College are the Language House (a residence hall open to students with a proficiency in foreign language), an exceptionally large slide library in the Art History Department, the Music Department's newly refurbished recital hall, the Pugliese Theatre for experimental drama, Improvisations Unlimited (a faculty-student dance group), the Computer Assisted Design and Development Laboratory in the Department of Design, the campus literary magazine *Calvert Review*, a biweekly foreign and art film series, a junior year abroad program in Nice, a year abroad program in Sheffield, and Honors programs in most departments. There are also special programs in women's studies, comparative literature, and the history and philosophy of science.

Preparation in the Arts and Humanities provides valuable background for careers in a broad range of fields. Students should be aware that there have been many eloquent testimonials from leaders of the nation's businesses that the skills of oral presentation, written exposition, critical thinking, and analytic problem-solving nurtured in humanities courses are in vital demand in business, industry, and government. These skills, critical to a successful career in any number of different fields, underlie a certificate program, the Liberal Arts in Business, available to Arts and Humanities majors.

Entrance Requirements. Students wishing to major in one of the creative or performing arts are encouraged to seek training in the skills associated with such an area prior to matriculation. Students applying for entrance to these programs may be required to audition, present slides, or submit a portfolio as a part of the admission requirements. Admission to programs in Design and in Radio, Television and Film is restricted.

Graduation Requirements. The following college requirements apply only to students earning Bachelor of Arts degrees from the College of Arts and Humanities. These requirements are *in addition to* or *in fulfillment of* campus and departmental requirements. For information concerning the Bachelor of Music in the Department of Music and the Bachelor of Science in the Department of Design, the student should consult advisors in those units.

Distribution
A minimum of 45 semester hours of the total of 120 must be upper-level work (i.e., courses numbered 300-499).

Foreign Language
Language proficiency may be demonstrated in one of several ways:
(a) Successful completion of level 4 in one language or level 2 in each of 2 languages in high school, or
(b) Successful completion of a 12-credit sequence or of the intermediate level in college language courses, or
(c) Successful completion of a language placement examination in one of the campus language departments offering such examinations.

Students whose native language is not English should see an advisor in the College Office of Student Affairs.

Speech
Successful completion of one of the following courses in speech communication: SPCH 100, 107, 125, 220, or 230; or
Successful completion of a full unit of speech in high school (usually a year-long course).

Major Requirements
All students must complete a program of study consisting of a major (a field of concentration) and supporting courses as specified by one of the academic units of the college. No program of study shall require in excess of 60 semester hours. Students should consult the unit in which they will major for specific details.

Students may choose a major as early as they wish; however, once they have earned 56 hours of acceptable credit, they **must** choose a major before their next registration.

A major shall consist, in addition to the lower division departmental prerequisites, of 24 to 40 hours, at least 12 of which must be in courses numbered 300 or 400 and at least 12 of which must be taken at College Park.

Each major program also requires a secondary field of concentration (supporting courses). The nature and number of these courses are under the control of the major department.

No grade lower than C may be used to fulfill major or supporting course requirements. No course for the major or support module may be taken Pass-Fail.

Advisors. Freshmen have advisors in the Arts and Humanities College Office of Student Affairs (454-2737) who assist them in the selection of courses and the choice of a major. After selecting a major, students are advised by faculty members in the major department and may also continue to see advisors in the College Office of Student Affairs. For further information about advising, students should see the section on advising in the Mini-Guide, available from the College Office of Student Affairs.

Degrees and Majors. The College of Arts and Humanities offers the degree of Bachelor of Arts in the following fields of study:

- American Studies
- Art Studio
- Art History
- Classics
  - Classical Humanities
  - Greek
  - Latin
- Comparative Literature
- Dance
- East Asian Languages and Literatures
  - Chinese
  - Japanese
- English Language and Literature
- French Language and Literature
- German Language and Literature
- History
- Jewish Studies
- Linguistics
- Music
- Philosophy
- Radio, Television, and Film
- Romance Languages
- Russian Language and Literature
- Russian Area Studies
- Spanish Language and Literature
- Speech Communication
- Theatre

The College of Arts and Humanities offers the degree of Bachelor of Science in the following fields of study:

- Advertising Design
- Interior Design
- Housing

The College also offers the degree of Bachelor of Music and certificate programs in Women's Studies, The Liberal Arts in Business, and East Asian Studies.

Internships. Most departments in Arts and Humanities have well-established internship offerings. Typically, students must complete an application and attach a current academic transcript. Internships are generally for one semester of the junior or senior year for students with a good academic record. Along with the actual work experience, students do a written analysis of the experience. For more information, students should contact their major departmental advisor or the College Office of Student Affairs (454-2737).

Certification of High School Teachers. A student who wishes certification as a high school teacher in a subject represented in this college must consult the College of Education in the second semester of the sophomore year. Application for admission to the Teacher Education program is made at the time that the first courses in Education are taken. Admission to the College of Education is selective.

Honors. Departmental Honors Programs are offered in the Departments of English, French, German, History, Music, Philosophy, Spanish, and Communication Arts and Theatre. Departmental Honors Programs are administered by an Honors Committee within each department. Programs and policies differ from department to department. Admission to a Departmental Honors Program ordinarily occurs at the beginning of the first or second semester of the student's junior year. Students must have a cumulative grade point average of at least 3.0 to be admitted. Most departments require a comprehensive examination over the field of the major program or a thesis. On the basis of the student's performance on the Honors Comprehensive Examination and in meeting such other requirements as may be set by the Departmental Honors Committee, the faculty may vote to recommend the candidate for the appropriate degree with (departmental) honors or for the appropriate announcement in the commencement program and citation on the student's academic record and diploma.

In some departments, honors students enjoy certain academic privileges similar to those of graduate students.

Phi Beta Kappa. Consult the description of Phi Beta Kappa in Chapter 5 of this catalog, under "Graduation."

Research and Service Units

The Center for Studies in Nineteenth-Century Music

Director: H. Robert Cohen
Associate Director: Luke Jensen
Research Coordinator: Gaetan Martel

The Center for Studies in Nineteenth-Century Music promotes research focusing on nineteenth-century music and musical life. The Center's programs are designed to facilitate the study, collection, editing, indexing, and publication of documentary source materials considered invaluable for furthering significant research in this area. The Center also promotes research focusing on the development of computer programs and laser printing techniques which permit both the realization of internationally-coordinated scholarly undertakings dealing with immense amounts of documentation, and the production of scholarly publications in a camera-ready format.

The Center for Renaissance and Baroque Studies

Director: S. Schoenbaum
Executive Director: Adele Seeff

The Center for Renaissance and Baroque Studies promotes teaching and research in the Renaissance and Baroque periods in all disciplines of the arts and humanities, as well as in such allied fields as the history and philosophy of science.

Research Center for Arts and Humanities

Acting Director: Calhoun Winton
Acting Deputy Director: Gregory Staley
Program Officer: Thomas Moore

The Research Center for Arts and Humanities promotes advanced research, creative activity, and extramural support for projects within the College of Arts and Humanities. The Center's programs, most of which are interdisciplinary in nature, are designed primarily for faculty and graduate students. These programs bring together faculty and students from various departments; they include "polyseminars," public lectures, conferences, and symposia. In addition, the Center awards, on a competitive basis, a number of fellowships to both faculty and graduate students each year.

Maryland English Institute

1104 Preinkert Fieldhouse, 454-6545/6

Director: Palmer

The Maryland English Institute (MEI) offers special instruction in English to University of Maryland students who need to improve their competence in the language before they are able to undertake a full program of academic work. Two programs are offered — a half-time semi-intensive course and a full-time intensive course.

Semi-intensive. This program is open only to University of Maryland students, both graduate and undergraduate, who fall within a TOEFL score range of 450-549. Candidates in this proficiency range may be admitted to the University of Maryland on a provisional basis, requiring them to satisfactorily complete the MEI Semi-intensive program in order to become full-time students. Classes meet two hours per day, five days per week during regular terms and four hours per day, five days per week during Summer Session II. In addition, students have two hours per week of assigned work in the language laboratory. The program is designed especially to perfect the language skills necessary for academic study at the University of Maryland. Enrollment is by permission of the director, and no credit is given toward any degree at the University.

Intensive. This full-time English-as-a-Foreign-Language program is open to non-native speakers of English who need substantial improvement in their English competence before they can undertake any academic study at a college or university in the United States. On the basis of an entrance examination, students will be assigned to classes at their particular proficiency levels. They will have four hours of English language instruction per day plus one hour of work in the language laboratory, five days per week during the regularly scheduled semester and an eight-week summer session. The program is intended primarily for students who wish to enroll at the University of Maryland after completing their language instruction. However, satisfactory completion of the language program does not guarantee acceptance at the University. Enrollment is by permission of the director and no credit is given toward any degree at the University.

COURSE CODE PREFIX — ARHU

COLLEGE OF BEHAVIORAL AND SOCIAL SCIENCES (BSOS)

2141 Tydings Hall, 454-5272

Dean: Murray E. Polakoff
Associate Dean: Stewart L. Edelstein
Assistant Dean for Student Affairs: Katherine Pedro Beardsley
Assistant Dean for Equity and Recruitment: Diana Ryder Jackson
Advising and Records Office: 454-2301
Center for Minorities in Behavioral and Social Sciences: 454-4225

The College of Behavioral and Social Sciences is comprised of a diverse group of disciplines and fields of study all of which emphasize a broad liberal arts education as the foundation for understanding the environmental, social, and cultural forces that shape our world. At the heart of the behavioral and social sciences is the attempt to understand human beings, both individually and in groups. Disciplines in the behavioral and social sciences use approaches that range from the scientific to the philosophical, from the experimental to the theoretical. Integral to all the disciplines, however, is the development and application of problem solving skills, which in combination with other academic skills, enable students to think analytically and to communicate clearly and persuasively. Students interested in human behavior and in solving human and social problems will find many exciting opportunities through the programs and courses offered by the College of Behavioral and Social Sciences.

The College is composed of the following major programs that lead to the Bachelor of Arts or the Bachelor of Science degree, as appropriate:

Afro-American Studies Program*
Department of Anthropology
Department of Economics
Department of Geography
Department of Government and Politics
Department of Hearing and Speech Sciences
Department of Psychology
Department of Sociology
Institute for Urban Studies
Institute of Criminal Justice and Criminology

*The Afro-American Studies Program also offers an undergraduate certificate requiring 21 semester hours of coursework (see the chapter on departments and campus-wide programs in this catalog).

Entrance Requirements. Requirements for admission to the College are the same as the requirements for admission to the University.

Advising.

Coordinators	Lola Hillman and Geri Scholl
Location:	2115 Tydings Hall
Phone	454-2301

The BSOS Undergraduate Advising Office coordinates advising and maintains student records for BSOS students. Advisors are available to provide information concerning University requirements and regulations, transfer credit evaluations, and other general information about the University by making same day appointments given on a walk-in basis from 9 a.m. to 4 p.m. daily.

Undergraduate advisors for each undergraduate major are located in the department offices. These advisors are available to assist students in selecting courses and educational experiences in their major area of study consistent with major requirements and students' educational goals.

Graduation Requirements. Each student must complete a minimum of 120 hours of credit with at least a 2.0 cumulative average. Courses must include the credits required in the University Studies Program, and the specific major and supporting course and grade requirements of the programs in the academic departments offering baccalaureate degrees.

All students are urged to speak with an academic advisor in the College Advising Office at least two semesters before graduation to review their academic progress and discuss final graduation requirements.

Honors. Undergraduate honors are offered to graduating students in the Departments of Anthropology, Economics, Geography, Government and Politics, Psychology, and Sociology, and in the Institutes of Criminology and Criminal Justice and Urban Studies.

Dean's Scholars. This is the highest academic award that a BSOS student can earn in the College. Dean Scholars are those graduating seniors who have completed 90 credits at UMCP and have maintained a minimum cumulative grade point average of 3.800.

Special Resources and Opportunities.

The Center for Minorities in the Behavioral and Social Sciences

Director: Miriam Langa (Acting)
Location: 2201 LeFrak Hall
Phone: 454-4225

The Center for Minorities provides academic and other support services designed specifically to meet the needs of minority students in the College. The Center provides advising on academic and other concerns related to students progress at the University; provides referrals, when appropriate, to other campus offices; and sponsors workshops and related activities on issues of particular relevance to minority students. Advisors are available on a walk-in basis and by appointment.

The Maryland Project for Women and Politics

Director: Georgia Sorenson
Location: 2169 LeFrak Hall
Phone: 454-6682

This project was initiated in 1987 to foster and expand the participation of women in the political process. Closely affiliated with each of the academic departments in the College, the project has established internships and fellowships with the Maryland women senators and delegates, the Women Legislators of Maryland and the Office of the Governor, Lt. Governor and Cabinet members. The Capitol Hill Program places two students with each member of the Maryland delegation, and a Fellow with the Congressional Caucus for Women's issues. Other components of the project include seminars, training, technical assistance and prominent speakers related to women and leadership and the political process. An interactive computer link with the project and the Women Legislators of Maryland has been initiated to strengthen the ties between policy makers and faculty and students conducting research on gender issues.

The BSS Computer Laboratory

Director: Robert Bennett
Location: 0221 LeFrak Hall
Phone: 454-3924

The College believes strongly that the study of behavioral and social sciences should incorporate both quantitative analysis and computational skills. Consequently, curricula in most departments require some coursework in statistics, quantitative research methods, and the use of computers. The BSS Computer Laboratory provides undergraduate students in the College with the facilities and staff assistance to satisfy a wide range of computer-related needs. The Laboratory's facilities include 150 fully networked computers, 40 fully networked terminals, a Prime 9650 minicomputer, 4 Micro-Vax computers, a substantial number of graphics terminals and peripheral equipment, and full access to campus UNISYS and IBM mainframe computers. The Laboratory operates eight computer classroom facilities and a special purpose graphics lab which are available for both in and out-of-class student use.

Field Experiences/Pre-professional and Professional Training

Pre-professional training and professional opportunities in the behavioral and social sciences are available in many fields. The Department of Hearing and Speech Sciences offers training for students interested in careers as speech pathologists. Students interested in urban planning will find academic and professional training through courses offered by the Institute for Urban Studies, the Department of Geography, and the Afro-American Studies Program. Students may choose government and politics, criminal justice and criminology, or sociology for preparation for careers in the law and related fields. The internship programs offered by many departments in the College provide students with practical experience working in governmental agencies, nonprofit organizations, corporations, and the specialized research centers and laboratories of the College.

Undergraduate Research Opportunities

Undergraduate research internships allow qualified undergraduate students to work with research laboratory directors and faculty in departments and specialized research centers, thus giving the student a chance for a unique experience in the design and conduct of research and scholarship. Students are advised to consult with their department advisors on research opportunities available in the major.

Student Organizations and Honor Societies

Students who excel in their academic discipline may be selected for membership in an honorary society. *Honoraries* for which students in BSS are chosen include:

Alpha Kappa Delta	Sociology
Alpha Phi Sigma	Criminal Justice
Lambda Epsilon Gamma	Law
Omega Delta Epsilon	Economics
Pi Sigma Alpha	Political Sciences
Psi Chi	Psychology

Dean's List: Any student who has passed at least twelve hours of academic work in the preceding semester, without failure of any course and with an overall average grade of at least 3.5 will be placed on the Dean's List of Distinguished Students.

Students who major in the Behavioral and Social Sciences have a wide range of interests. The following is a list of student *organizations* in the disciplines and fields of the Behavioral and Social Sciences.

Student Organizations: Academic Interests

- o Anthropology Student Organization
- o Conservation Club
- o Criminal Justice Student Association
- o Gamma Theta Upsilon (Geography)
- o Minority Pre-Professional Psychology Society
- o Pre-Medical Society (Pre-Med/Psychology Majors)
- o Thurgood Marshall Pre-Law Society

For more information about these student organizations or starting a new student group, please contact the Office of Campus Activities at 454-5605 or by visiting 1191 Adele H. Stamp Student Union.

Research and Service Units

Bureau of Business and Economic Research

Director: John Cumberland
Location: 4118 Tydings Hall
Phone: 454-2303

The functions of the Bureau of Business and Economic Research are research, education, and public service. The research activities of the Bureau are primarily focused on basic research and applied research in the fields of regional, urban, public finance, and environmental studies. Although the Bureau's long-run research program is carried out largely by its own staff, faculty members from other departments also participate. The Bureau also undertakes cooperative research programs with the sponsorship of Federal and State governmental agencies, research foundations, and other groups.

The educational functions of the Bureau are achieved through active participation by advanced graduate and undergraduate students in the Bureau's research program. This direct involvement of students in the research process under faculty supervision assists students in their degree programs and provides research skills that equip students for responsible posts in business, government and higher education.

The Bureau fulfills its service responsibilities to governments, business, and private groups primarily through the publication and distribution of its research findings. In addition, the Bureau staff welcomes the opportunity to be of service to governmental and civic groups by consulting with them on problems, especially in the fields of regional and urban economic development and forecasting, State and local public finance, and environmental management.

Center for International Development and Conflict Management

Director: Edward Azar

Location: 2nd floor Mill Building
Phone: 454-2506

The Center for International Development and Conflict Management is a research center focusing on the management and resolution of protracted conflict in the world today. Established in 1981, the Center has a staff composed of University faculty, visiting fellows and associates involved in study of contemporary international and intercommunal conflicts — their causes, dynamics, management strategies and peaceful resolution.

Industrial Relations and Labor Studies Center

Director: Paul Weinstein
Location: 4106 Tydings Hall
Phone: 454-5235

The Industrial Relations and Labor Studies Center was organized in 1978 at UMCP and is concerned with two kinds of activity. The first is interdisciplinary research directed primarily toward the study of labor-management relations, employment, wages and related problems, the labor market, occupational safety and health, comparative studies and human resources problems. The Center draws on the expertise and interests of faculty from the College of Business and Management, the School of Law and the Departments of Economics, History, Psychology, Sociology, and Health Education. The second main activity consists of educational projects serving management, unions, the public, and other groups interested in industrial relations and labor-related activities. These projects consist of public lectures, conferences, and symposia as well as non-credit courses.

Survey Research Center

Director: Susan Dowden (Acting)
Location: 1103 Art-Sociology Building
Phone: 454-6800

The Survey Research Center was created in 1980 as a college-wide research facility within the behavioral and social sciences. The Center specializes in the design of questionnaires and the conduct of surveys for policy purposes, and has the capacity to conduct mini-surveys, survey experiments, and in-depth clinical interviews. The Center annually conducts the Maryland Poll, a sampling of public opinion across the State on important issues to Maryland citizens; it also conducts periodic surveys of the Baltimore-Washington region and shares results of these surveys nationally through the Network of State Polls. The Center provides assistance to researchers in sample design, has technical expertise on the storage, manipulation, and analysis of very large data sets, and provides support services to archive and maintain such data sets.

The Center supports undergraduate and graduate education by providing both technical training and practical experience to students. Also, the Center has a strong community service mission through the provision of technical assistance on survey methods and survey design to units of state and local governments, and by conducting surveys on a contract or grant basis for these governmental units.

COLLEGE OF BUSINESS AND MANAGEMENT (BMGT)

Office of Undergraduate Studies: 2136 Tydings Hall, 454-4314

Professor and Dean: Rudolph P. Lamone
Professor and Associate Dean: Leete
Assistant Dean and Director of EDP: Stocker
Assistant Dean for External Relations: Kelly
Professor and Director of Doctoral Program: Preston
Director of the Masters' Programs: Waikart
Director of Undergraduate Studies: Mattingly
Associate Director of Undergraduate Studies: Stuart
Assistant Director of Undergraduate Studies: Zager

The College of Business and Management recognizes the importance of education in business and management to economic, social, and professional development through profit and non-profit organizations at the local, regional, and national levels. The faculty of the College have been selected from the leading doctoral programs in business. They are scholars, teachers, and professional leaders with a commitment to superior education in business and management. The College of Business and Management is one of two business schools in Maryland accredited by the American Assembly of Collegiate Schools of Business, the official national accrediting organization for business schools.

The College has faculty specializing in accounting, finance, decision and information sciences, management science and statistics, management and organization, marketing, and transportation, business and public policy.

Degrees. The University confers the following degrees on students successfully completing programs of study in the College: Bachelor of Science (B.S.), Master of Business Administration (M.B.A.), Master of Science (M.S.), and Doctor of Philosophy (Ph.D.). Each candidate for a degree must file in the Office of Records and Registrations by the end of the Schedule Adjustment Period, a formal application for a degree. Information concerning admission to the M.B.A. or M.S. program is available from the College's Director of the Masters' Programs.

Undergraduate Program. The undergraduate program recognizes the need for professional education in business and management based on a foundation in the liberal arts. Modern society comprises intricate business, economic, social, and government institutions requiring a large number of men and women trained to be effective and responsible managers. The College regards its program leading to the Bachelor of Science in business and management as one of the most important ways it serves this need.

A student in business and management selects a major in one of several curricula: (1) Accounting, (2) Decision and Information Sciences, (3) Finance; (4) General Business and Management; (5) Management Science; (6) Marketing; (7) Personnel and Labor Relations, (8) Production Management; (9) Statistics; and (10) Transportation. For students interested in law as a career there is a combined business and law program. The Bachelor of Science degree in one of the above curricula is awarded after ninety semester hours and one year at the University of Maryland School of Law. (See specific requirements at the end of the curricula section to follow.)

Students interested in insurance, real estate, or international business may plan with their advisors to select elective courses to meet their specialized needs; however, this interest is in addition to completion of one of the above majors. (See specific suggestions at the end of curricula section to follow.)

Academic Advising. General advisement in the College of Business and Management is available Monday through Friday in the Office of Undergraduate Studies in Room 2136, Tydings Hall (454-4314). It is recommended that students visit this office each semester to ensure that they are informed about current requirements and procedures. Student problems concerning advising should be directed to the Director of Undergraduate Studies.

Transfer students entering the University can be advised during spring, summer, and fall transfer orientation programs. Contact the Orientation Office for further information (454-5752).

Entrance Requirements. Admission to the College of Business and Management is on a competitive basis for undergraduates at the junior level, except for a small number of academically talented freshmen. In order to be admitted as a junior, an applicant must have earned at least fifty-six semester credits, completed the required pre-business courses (i.e., freshman-sophomore core requirements), and meet the competitive cumulative grade point average (GPA) in effect for the academic year. This GPA will always be greater than 2.3 (on 4.0 scale); however, for Fall 1988 - Spring 1989 this competitive cumulative GPA was set at 2.9. Competitive GPA for academic year 1989-90 will be determined in March 1989. In addition to all UMCP coursework, all courses from other colleges count toward the computation of the cumulative GPA for Business College admission regardless of whether the courses have been accepted for transfer credit to UMCP.

Statement of Policy on Transfer of Credit from Community Colleges. The College of Business and Management subscribes to the policy that a student's undergraduate program below the junior year should include no advanced, professional level courses. This policy is based on the conviction that the value derived from these advanced courses is materially enhanced when based upon a sound foundation in the liberal arts.

In adhering to the above policy, it is the practice of the College of Business and Management to accept in transfer from a regionally accredited community college no more than twelve semester hours of business administration courses. The twelve semester hours of business administration acceptable in transfer are specifically identified as three semester hours in an introductory business course, three semester hours in business statistics, and six semester hours of elementary accounting. Thus, it is anticipated that students transferring from another regionally accredited institution will have devoted the major share of their academic effort below the junior year to the completion of basic requirements in the liberal arts. A total of sixty semester hours may be transferred from a community college and applied toward a degree from the College of Business and Management.

Statement of Policy on the Transfer of Credits from Other Institutions. The College of Business and Management normally accepts transfer credits from regionally accredited four-year institutions. Junior and senior level business courses are accepted from colleges accredited by the American Assembly of Collegiate Schools of Business (AACSB). Junior and senior

level business courses from other than AACSB accredited schools are evaluated on a course-by-course basis to determine transferability

Summary of Bachelor of Science Degree Requirements (all curricula). At least 45 hours of the 120 semester hours of academic work required for graduation must be in business and management subjects. A minimum of fifty-seven hours of the required 120 hours must be in 300 or 400 level courses. These fifty-seven hours of upper level credits may not be attempted without special permission until a student has earned a minimum of fifty-six credits. In addition to the requirement of an overall cumulative grade point average of 2.0 (C average) in all College Park coursework, an average of C in business and management subjects is required for graduation in all majors except Accounting. Accounting majors must earn a "C" or better in the nine required Accounting courses, effective with Fall 1986 matriculation. Electives outside the ten curricula of the College may be taken in any department of the University, if the student has the necessary prerequisites. Business courses taken as electives may not be taken on a pass/fail basis by students of the College of Business and Management

Freshman-Sophomore Core Requirements	*Credit Hours*	
MATH 220 or 140* (AND 141*)	3	(8)
BMGT 220 and 221	6	
BMGT 230 (231*)	3	
ECON 201 and 203	6	
SPCH 100 or 107	3	
Total	21	(26)

*Required for Decision and Information Sciences, Management Science, and Statistics curricula

Junior-Senior Core Requirements BMGT 301 - Intro. to Data Processing (junior standing recommended)	3
BMGT 340 - Business Finance (Prerequisite BMGT 221 and 230)	3
BMGT 350, Marketing Principles and Organization (Prerequisite ECON 203)	3
BMGT 364, Management and Organizational Theory (junior standing recommended)	3
BMGT 380, Business Law (junior standing recommended)	3
BMGT 495 or 495A, Business Policies (open ONLY to seniors)	3
Economics (see below)	6
Total	24

Economics Requirements

Finance Curriculum: ECON 430 or ECON 431, AND one course from ECON 305, 306, 402, 440 or 450.

General Business and Management Curriculum: One course from ECON 305, 306, 430, or 440, AND one course from an approved list of ECON, GEOG, PSYC, or SOCY courses. The approved list is available in the Undergraduate Studies Office, College of Business and Management

All other curricula: One course from ECON 305, 306, 430 or 440, AND one of the following courses: ECON 311, 315, 316, 317, 361, 370, 374, 375, 380 or any 400 level ECON course except 422, 423, or 425.

Junior-Senior Major Curriculum Concentration

Refer to specific Curriculum section which follows. Accounting and Decision and Information Sciences majors take 21 semester hours) 15-18(21)

Total 15-18(21)

University Studies Program (USPs)

Fundamental Studies	
Freshman Composition (ENGL 101*)	3
Upper Level Composition (ENGL 391, 392, 393, 394, 395**)	3
Distributive Studies	
Area A (minimum 2 courses)	6
Area B (Lab Science only)	4
Area C (must be from 2 different departments)	6
Advanced Studies (must be from two different departments outside your major or majors):	
Development of Knowledge (not EDMS 451)	3
Analysis of Human Problems (not CNEC 437)	3
*Total****	28

* Students exempt from ENGL 101 may take a three-credit elective of any level in its place.
** Students exempt from ENGL 391, 392, etc. must take a three credit upper level elective in its place

*** Students with an approved three-credit lab science course or a four-credit Area A USP course may change the USP total (above) and the elective total (below) accordingly

Electives

All Finance majors are required to have one three-credit BMGT elective in order to fulfill 45 hours in business. NOTE: All students, except Accounting and Decision and Information Sciences majors, who matriculated prior to Fall 1986, must have one three-credit BMGT elective.

The remaining electives must bring the degree total to 120 semester hours. The student must have sufficient upper level electives to bring the total upper level courses (300 and 400 level) to fifty-seven semester hours

Grand Total 120

A Typical Program for the Freshman and Sophomore Years.

Freshman Year	*Credit Hours*	
USPs and/or electives	9	(8)
English 101 or equivalent	3	
MATH 002**, 115, or 220 (or 140*)	3	(4)
First semester total	15	
USPs and/or electives	9	(8)
SPCH 100 or 107	3	
MATH 115, (141*), 220 or elective	3	(4)
Second semester total	15	
Sophomore Year		
USPs and/or electives	6	
BMGT 220 (Prereq. Sophomore Standing)	3	
ECON 201 (Prereq. Sophomore Standing)	3	
MATH 220 or BMGT 230 (231*) or elective	3	
Third semester total	15	
USPs and/or electives	6	
ECON 203 (Prereq. ECON 201)	3	
BMGT 221 (Prereq. BMGT 220)	3	
BMGT 230 (Prereq. MATH 220) or 231* (Prereq. MATH 141) or elective	3	
Fourth semester total	15	

* Required for Decision and Information Sciences, Management Science, and Statistics curricula
** MATH 002 is a non-credit course which prepares a student for either 115 or 220 depending on the grade earned in 002.

CURRICULA

Accounting

Chair: S. Loeb
Professors: Gordon, S. Loeb
Associate Professors: Bedingfield, Edelson, M. Loeb
Assistant Professors: Huss, Jang, Schick
Lecturers: Harris, Zieha

Accounting, in a limited sense, is the analysis, classification, and recording of financial events and the reporting of the results of such events for an organization. In a broader sense, Accounting consists of all financial systems for planning, controlling and appraising performance of an organization. Accounting includes among its many facets: financial planning, budgeting, accounting systems, financial management controls, financial analysis of performance, financial reporting, internal and external auditing, and taxation.

The Accounting curriculum provides an educational foundation for careers in Accounting and other management areas whether in private business organizations, government and non-profit agencies, or public accounting firms.

Course requirements for the junior-senior curriculum concentration in Accounting are as follows:

	Credit Hours
BMGT 310, 311 - Intermediate Accounting I and II	6
BMGT 321 - Cost Accounting	3
BMGT 323 - Income Tax Accounting	3
Three of the following courses:	9
BMGT 326 - Accounting Systems	
BMGT 410 - Fund Accounting	
BMGT 417 - Advanced Tax Accounting	
BMGT 420, 421 - Undergraduate Accounting Seminar	
BMGT 422 - Auditing Theory and Practice	
BMGT 424 - Advanced Accounting	
BMGT 426 - Advanced Cost Accounting	
BMGT 427 - Advanced Auditing Theory and Practice	
Total	21

The educational requirements of the Maryland State Board of Accountancy for certification are a baccalaureate or higher degree with a major in Accounting or with a non-accounting degree supplemented by coursework the Board determines to be substantially the equivalent of an Accounting major. Students planning to take the CPA examination for certification and licensing should determine the educational requirements for that state and arrange their program accordingly.

Decision and Information Sciences

Chair: Hevner
Professor: Yao
Associate Professor: Hevner
Assistant Professors: Ahad, Basu, Raschid

Computer-based information systems are an integral part of nearly all businesses, large and small. Decision and Information Sciences provides the data processing skills, the managerial and organizational skills, and the analytical skills required to design and manage business information processing systems. This program gives the student a firm basis in the business functional areas: Marketing, Finance, Production, and Accounting. In addition it provides an in-depth knowledge of information processing technology, information processing implementation techniques, and Management Science and Statistics. These skills furnish the student with the expertise to analyze business problems both qualitatively and quantitatively, to propose computer based solutions, and to implement those solutions. There are many diverse employment opportunities available to graduates of this program. The typical job areas include application programmer/analyst, systems analyst, and computer system marketing analyst. Such positions are available in both large and small corporations, management consulting firms, and government agencies.

Students planning a major in this field must complete MATH 140 and 141 prior to junior standing. Students considering graduate work in this field should complete MATH 240 or 400 as early as possible in their careers. It is recommended that for the upper level English composition requirement students choose ENGL 393 - Technical Writing or ENGL 394 - Business Writing.

Course requirements for the junior-senior curriculum concentration in the Decision and Information Sciences are as follows:

	Credit Hours
BMGT 302 - Information Systems Implementation Techniques	3
BMGT 402 - Database and Data Communication Systems	3
BMGT 403 - Systems Analysis	3
BMGT 404 - Seminar in Decision Support Systems	3
BMGT 430 - Linear Statistical Models in Business	3
BMGT 434 - Introduction to Optimization Theory	3
BMGT 435 - Introduction to Applied Probability Models	3
Total	21

Finance

Chair: Bradford
Professors: Bradford, Chen, Haslem, Kolodny
Associate Professors: Edmister, Eun
Assistant Professors: Chang, Soubra, Unal

The Finance curriculum is designed to familiarize the student with the institutions, theory, and practice involved in the allocation of financial resources within the private sector, especially the firm. It is also designed to incorporate foundation study in such related disciplines as economics and the quantitative areas.

The Finance curriculum provides an educational foundation for careers involving financial analysis and management, investment analysis and portfolio management, investment banking, insurance and risk management, banking, and international finance; it also provides a foundation for graduate study in business administration, quantitative areas, economics, and law.

Course requirements for the junior-senior curriculum concentration in Finance are as follows:

	Credit Hours
BMGT 343 - Investments	3
One of the following courses:	3
BMGT 332 - Operations Research for Management Decisions	
BMGT 434 - Introduction to Optimization Theory	
Two of the following courses:	6
BMGT 440 - Financial Management	
BMGT 445 - Commercial Bank Management	
BMGT 443 - Security Analysis and Valuation	
BMGT 444 - Futures Contracts and Options (Any combination except 443 and 444)	
One of the following courses (check prerequisites)	3
BMGT 302 - Information Systems Implementation Techniques	
BMGT 430 - Linear Statistical Models in Business	
BMGT 431 - Design of Statistical Expenments in Business	
BMGT 433 - Statistical Decision Theory in Business	
BMGT 435 - Introduction to Applied Probability Models	
MATH 221/141 or higher advanced MATH	
Total	15

Management and Organization

Chair: Locke*
Professors: Bartol+, Carroll, Gannon, Levine, Locke, Sims
Associate Professors: Gupta, Olian, Power, Taylor
Assistant Professors: Premack, Smith

*Joint with Psychology
+Distinguished Scholar-Teacher

Personnel and Labor Relations. Personnel Administration has to do with the direction of human effort. It is concerned with securing, maintaining and utilizing an effective work force. People professionally trained in Personnel Administration find career opportunities in business, in government, in educational institutions, and in charitable and other organizations. Course requirements for the junior-senior curriculum in Personnel and Labor Relations are as follows:

	Credit Hours
BMGT 360 - Personnel Management	3
BMGT 362 - Labor Relations	3
BMGT 460 - Personnel Management-Analysis & Problems	3
BMGT 462 - Labor Legislation	3
BMGT 464 - Organizational Behavior	3
One of the following courses (check prerequisites)	3
BMGT 385 - Production Management	
BMGT 467 - Undergraduate Seminar in Personnel Management	
GVPT 411 - Public Personnel Administration	
JOUR 330 - Public Relations	
PSYC 361 - Survey of Industrial and Organizational Psychology	
PSYC 451 - Principles of Psychological Testing	
PSYC 452 - Psychology of Individual Differences	
SOCY 447 - Small Group Analysis	
SOCY 462 - Industrial Sociology	
Total	18

Management Science and Statistics

Chair: Golden
Professors: Assad, Ball, Bodin, Gass, Golden, Kotz+, Lamone
Associate Professors: Alf, Fromovitz, Widhelm
Assistant Professor: Ahn

+Distinguished Scholar-Teacher

In the Management Science and Statistics curriculum, the student has the option of concentrating primarily in Management Science, Production Management, or Statistics.

Management Science. Management Science (operations research) is the application of scientific methods to decision problems, especially those involving the control of organized man-machine systems, to provide solutions that best serve the goals and objectives of the organization as a whole. Practitioners in this field are employed in industry, business, and federal, state, and local governments. Students planning to major in this field must complete MATH 140 and 141 prior to junior standing. Students considering graduate work in this field should complete MATH 240 and 241 as early as possible in their careers.

Course requirements for the junior-senior curriculum concentration in the Management Science are as follows:

	Credit Hours
BMGT 430 - Linear Statistical Models in Business	3
BMGT 434 - Introduction to Optimization Theory	3
BMGT 435 - Introduction to Applied Probability Models	3
BMGT 436 - Applications of Mathematical Programming in Management Science	3
Two of the following courses (check prerequisites)	6
BMGT 385 - Production Management	
BMGT 432 - Sample Survey Design for Business and Economics	
BMGT 433 - Statistical Decision Theory in Business	
BMGT 438 - Topics in Statistical Analysis for Business and Management	
BMGT 485 - Advanced Production Management	
BMGT 402 - Database and Data Communication Systems	
BMGT 403 - Systems Analysis	
Total	18

Production Management. This curriculum is designed to acquaint the student with the problems of organization and control in the field of Production Management. Theory and practice with reference to organization, policies, methods, processes, and techniques are surveyed, analyzed, and evaluated.

Course requirements for the junior-senior curriculum concentration in Production Management are as follows:

	Credit Hours
BMGT 321 - Cost Accounting	3
BMGT 360 - Personnel Management	3
BMGT 385 - Production Management	3
BMGT 485 - Advanced Production Management	3
Two of the following courses (check prerequisites):	6
BMGT 433 - Statistical Decision Theory in Business	
BMGT 453 - Industrial Marketing	
BMGT 362 - Labor Relations	
BMGT 332 - Operations Research for Management Decisions	
BMGT 372 - Traffic and Physical Distribution Management	
Total	18

Statistics. Statistics consists of a body of methods for utilizing probability theory in decision-making processes. Important statistical activities ancillary to the decision-making process are the systematization of quantitative data and the measurement of variability. Some specialized areas within the field of statistics are: sample surveys, forecasting, quality control, design of experiment, Bayesian decision processes, actuarial statistics, and data processing. Statistical methods, such as, sample survey techniques, are widely used in accounting, marketing, industrial management, and government applications. An aptitude for applied mathematics and a desire to understand and apply scientific methods to significant problems are important prerequisites for the statistician. Students planning to major in statistics must take MATH 140 and 141.

Course requirements for the junior-senior curriculum concentration in Statistics are as follows:

	Credit Hours
BMGT 430 - Linear Statistical Models in Business	3
BMGT 432 - Sample Survey Design for Business and Economics	3
BMGT 434 - Introduction to Optimization Theory	3
BMGT 438 - Topics in Statistical Analysis for Business and Management	3
Two of the following courses (check prerequisites):	6
BMGT 385 - Production Management	
BMGT 433 - Statistical Decision Theory in Business	
BMGT 435 - Introduction to Applied Probability Models	
BMGT 436 - Applications of Mathematical Programming in Management Science	
BMGT 450 - Marketing Research Methods	
Total	18

Marketing

Chair: Durand
Professors: Durand, Greer, Jolson
Associate Professors: Biehal, Krapfel, Nickels
Assistant Professors: Calfee, Stephens
Lecturers: Ali, Seshadri, Stocker

Marketing, the study of exchange activities, involves the functions performed in getting foods and services from producers to users. Career opportunities exist in manufacturing, wholesaling, retailing, service organizations, government, and non-profit organizations and include sales administration, marketing research, advertising, merchandising, physical distribution, and product management. Students preparing for work in marketing research are advised to elect additional courses in Management Science and Statistics.

Course requirements for the junior-senior curriculum concentration in Marketing are as follows:

	Credit Hours
BMGT 451 - Consumer Analysis	3
BMGT 452 - Marketing Research Methods	3
BMGT 457 - Marketing Policies and Strategies	3
Three of the following courses (check prerequisites):	9
BMGT 332 - Operations Research for Management Decisions	
BMGT 353 - Retail Management	
BMGT 354 - Promotion Management	
BMGT 372 - Traffic and Physical Distribution Management	
BMGT 431 - Design of Statistical Experiments in Business	
BMGT 453 - Industrial Marketing	
BMGT 454 - International Marketing	
BMGT 455 - Sales Management	
BMGT 456 - Advertising	
Total	18

Transportation, Business, and Public Policy

Chair: Corsi
Professors: Leete, Preston, Roberts (emeritus) Simon, Taff (emeritus)
Associate Professors: Corsi, Poist
Assistant Professors: Grimm, Mattingly (affiliate), Scheraga, Windle
Lecturers: Beach, Dresner, Scott

Transportation. This curriculum involves the movement of persons and goods in the satisfaction of human needs. The curriculum in Transportation includes an analysis of the services and management problems, such as pricing, financing, and organization, of the five modes of transport — air, motor, pipelines, railroads and water — and covers the scope and regulation of transportation in our economy. The effective management of transportation involves a study of the components of physical distribution and the interaction of procurement, the level and control of inventories, warehousing, material handling, transportation, and data processing. The curriculum in Transportation is designed to prepare students to assume responsible positions with carriers, governmental agencies, and in traffic and physical distribution management in industry.

Course requirements for the junior-senior curriculum concentration in Transportation are as follows:

	Credit Hours
BMGT 370 - Principles of Transportation	3
BMGT 372 - Traffic and Physical Distribution Management	3
BMGT 470 - Carrier Management	3
BMGT 476 - Applied Computer Models in Transportation and Logistics	3
One of the following courses:	3
BMGT 473 - Advanced Transportation Problems	
BMGT 475 - Advanced Logistics Management	
One of the following courses:	3
BMGT 332 - Operations Research for Management Decisions	
BMGT 454 - International Marketing	
BMGT 473 or 475 (depending on choice above)	
BMGT 474 - Urban Transportation and Development	
BMGT 477 - International Transportation and Logistics	
BMGT 481 - Public Utilities	
BMGT 482 - Business and Government	
Total	18

General Curriculum in Business and Management. The General Curriculum is designed for those who desire a broader course of study in business and management than offered in the other College curricula. The General Curriculum is appropriate for example, for those who plan to enter small business management or entrepreneurship where general knowledge of the various fields of study may be preferred to a more specialized curriculum concentration.

Course requirements for the junior-senior curriculum concentration in General Business and Management are as follows:

	Credit Hours
Accounting/Finance	
One of the following courses:	3
BMGT 321 - Cost Accounting	
BMGT 440 - Financial Management	
Management Science/Statistics	
One of the following courses:	3
BMGT 332 - Operations Research for Management Decisions	
BMGT 385 - Production Management	
BMGT 431 - Design of Statistical Experiments in Business	
BMGT 433 - Statistical Decision Theory in Business Marketing	
One of the following courses:	3
BMGT 353 - Retail Management or a higher number marketing course (check prerequisites)	
Personnel/Labor Relations	
One of the following courses:	3
BMGT 360 - Personnel Management	
BMGT 362 - Labor Relations	
Public Policy	
One of the following courses:	3
BMGT 481 - Public Utilities	
BMGT 482 - Business and Government	
Transportation/Physical Distribution	
One of the following courses:	3
BMGT 370 - Principles of Transportation	
BMGT 372 - Traffic and Physical Distribution Management	
Total	18

Business and Law, Combined Program. The College of Business and Management offers a combined business-law curriculum in which the student completes three years in the chosen curriculum concentration in the College and a fourth year of work at the University of Maryland School of Law. Admission to the law school is contingent on meeting the applicable standards of the school. Individual students are responsible for securing from the law school its current admission requirements. The student must complete all the courses required of students in the College, except BMGT 380 and BMGT 495. This means the student must complete all the pre-business courses; both upper level ECON courses; BMGT 301, 340, 350, and 364, all lower level and upper level USP requirements; the 15 to 21 hours in the student's specific business major, and enough additional electives to equal a minimum of ninety semester hours, thirty of which must

be numbered 300 or above. No business law course can be included in the ninety hours. The last thirty hours of college work before entering law school must be completed in residence at College Park.

The Bachelor of Science degree is conferred by the College upon students who complete the first year in the law school with an average grade of "C" or better.

Insurance and Real Estate. Students interested in insurance or real estate may wish to concentrate in Finance or General Business and Management and plan with their advisors a group of electives to meet their specialized needs. College courses that are occasionally offered in insurance:

BMGT 345 - Property and Liability Insurance
BMGT 346 - Risk Management
BMGT 347 - Life Insurance

College courses that are occasionally offered in real estate:

BMGT 393 - Real Estate Principles
BMGT 490 - Urban Land Management

Institutional Management. Students interested in hotel-motel management or hospital administration must fulfill one of the ten majors such as General Business and Management, Finance, or Personnel and Labor Relations and then plan with their advisors a group of electives, such as the following:

BMGT 440 - Financial Management
BMGT 482 - Business and Government
FSAD 300 - Food Service Organization and Management

International Business. Students interested in international business must fulfill one of the ten majors, such as Marketing, Finance, Transportation, or General Business and Management, and then plan with their advisors courses such as these below while selecting their ECON, USP Advanced Studies, and elective courses:

BMGT 392 - International Business
ECON 440 - International Economics
GVPT 300 - International Political Relations
GVPT 402 - International Law
GVPT 457 - American Foreign Relations and courses related to specific geographic areas.

Honor Societies.

Beta Alpha Psi. National scholastic and professional honorary fraternity in accounting. Members are elected on the basis of excellence in scholarship and professional service from junior and senior students majoring in accounting in the College of Business and Management.

Beta Gamma Sigma. National scholastic honorary society in business administration. To be eligible students must rank in the upper five percent of their junior class or the upper ten percent of their senior class in the College of Business and Management. Students are eligible the semester after they have earned forty-five credits on the College Park Campus, and have earned a total of seventy-five credits.

Financial Management Association Honorary Society. National scholastic honorary society sponsored by the Financial Management Association. To be eligible students must be finance majors with a cumulative grade point average of 3.5 for a minimum of ninety credits.

Omega Rho. National scholastic honorary society in operations research, management and related areas. Members are elected on the basis of excellence in scholarship from junior and senior students majoring in appropriate quantitative areas.

Pi Sigma Phi. National scholastic honorary society sponsored by the Propeller Club of the United States. Membership is elected from outstanding senior members of the University of Maryland chapter of the Propeller Club majoring in transportation in the College of Business and Management.

Student Awards. For high academic achievement, students in the college may receive recogition by the Dean's List, Delta Sigma Pi Scholarship Key, Distinguished Accounting Student Awards; and Wall Street Journal Student Achievement Award.

Scholarships. The college offers several scholarships, including the AIAC C. J. "Bud" Ecalono Memorial Scholarship #16; Alcoa Foundation Traffic Scholarship; Delta Nu Alpha Chesapeake Chapter No. 23 Scholarship; Delta Nu Alpha Washington, D. C. Chapter No. 84 Scholarship; Geico Achievement Award; William F. Holin Scholarship; National Defense Transportation Association Scholarship, Washington, D. C. Chapter; Propeller Club Scholarship; Warren Reed Scholarship (Accounting); Jack B. Sacks Foundation Scholarship (marketing); Charles A. Taff Scholarship (transportation); and William and Carolyn Witzel Scholarship.

Student Professional Organizations. Students may choose to associate themselves with one or more of the following professional organizations: American Marketing Association, American Society for Personnel Administration (personnel); Association of College Entrepreneurs (all business majors); Dean's Undergraduate Advisory Council; Delta Nu Alpha (transportation); Delta Sigma Pi (all businessmajors); Finance, Banking and Investments Society (finance); National Association of Accountants; National Defense Transportation Association (transportation); Phi Chi Theta (all business majors); Society for the Advancement of Management (all business majors), and Propeller Club of America (transportation).

Course Code Prefix: BMGT

COLLEGE OF COMPUTER, MATHEMATICAL AND PHYSICAL SCIENCES

2300 Mathematics Building, 454-4596

Dean: J. R. Dorfman
Assistant Dean: T. M. Williams
Advisor/consultant: B. J. Banks

The search for new knowledge is one of the most challenging activities of humankind. Universities are the key institutions in society where fundamental research is emphasized. The College of Computer, Mathematical and Physical Sciences at College Park contributes very substantially and effectively to the research activities of the University of Maryland. The College of Computer, Mathematical and Physical Sciences is like a technical institute within a large university. Students majoring in any one of the disciplines encompassed by the college have the opportunity of obtaining an outstanding education in their field.

The college serves both students who continue as professionals in their area of specialization, either immediately upon graduation or after postgraduate studies, and those who use their college education as preparatory to careers or studies in other areas. The focused specialist as well as the broad "Renaissance person" can be accommodated.

Many research programs include undergraduates either as paid student helpers or in forms of research participation. Students in departmental Honors Programs particularly are given the opportunity to become involved in research. Other students too may undertake research under the guidance of a faculty member.

A major portion of the teaching program of the college is devoted to serving students majoring in disciplines outside of the college. Some of this teaching effort is directed toward providing the skills needed in support of such majors or programs. Other courses are designed as enrichment for non-science students, giving them the opportunity to explore the reality of science without the technicalities required of the major.

The college is strongly committed to making studies in the sciences available to all regardless of their background. In particular, the college is actively pursuing an affirmative action program to rectify the present under-representation of women and minorities in these fields. There are in fact many career opportunities for women and members of minorities in the fields represented by the college.

Structure of the College. The following departments, programs and research units comprise the College of CMPS:

Department of Computer Science
Department of Geology
Department of Mathematics
Department of Meteorology
Department of Physics
Applied Mathematics Program
Astronomy Program
Chemical Physics Program
Physical Sciences Program
Center for Automation Research
Institute for Advanced Computer Studies
Institute for Physical Sciences and Technology
Laboratory for Plasma Research (joint with College of Engineering)

Degree Programs. The following Bachelor of Science degree programs are offered to undergraduates by the departments and programs of the college: Astronomy, Computer Science, Geology, Mathematics, Physics, Physical Sciences.

Mathematics Education. A student completing an undergraduate major in astronomy, physics, physical sciences, or math who wishes certification as high school teacher in a subject represented by this college, must consult the College of Education in the second semester of the sophomore year. Early contact should be made with either Dr. John Layman (astronomy, physics, physical sciences) or Dr. James Fey (mathematics). Application for admission to the Teacher Education program is made at the time that the first courses in education are taken. Admission to the Teacher Preparation program is selective.

Advising: The CMPS Undergraduate Office, Mathematics Building Room 2300 (454-4596) is the central office for coordinating the advising, processing and updating of student records. Inquiries concerning University regulations, transfer credits, and other general information should be

addressed to this office Specific departmental information is best obtained directly from the departments

Entrance Requirements. With the exception of Computer Science, criteria and procedures for admission to the College are the same as admission to the institution. Admission to the Computer Science Department is on a competitive basis for both freshmen and transfer students. Freshmen are admitted on the basis of their Scholastic Aptitude Tests and high school grade point average. Transfer admission is based on a cumulative grade point average and completion of specific courses in mathematics and computer science.

Graduation Requirements.

1. A minimum of 120 semester hours with at least a C average is required of all Bachelor of Science degrees from the college.
2. Thirty-nine credit hours which satisfy the University Studies Program as presented under Academic Regulations and Requirements in this catalog Courses taken to satisfy these requirements may also be used to satisfy major requirements All students who matriculated in the summer 1978 session or later must complete six credits of English Composition
3. Major and supporting coursework as specified under each department or program.
4. The final thirty semester hours must be completed at College Park. Occasionally, this requirement may be waived by the dean for up to six of these thirty credits to be taken at another institution. Such a waiver is granted only if the student already has thirty credits in residence.
5. Students must be enrolled in the program in which they plan to graduate by the time they register for the last fifteen hours.

Research and Service Units

Institute for Physical Science and Technology

4201 Computer and Space Sciences Building, 454-2639

Professor and Director: James A. Yorke1

1Joint with Mathematics

The faculty members of the Institute for Physical Science and Technology are engaged in the study of pure and applied science problems that are at the boundaries between those areas served by the academic departments. These interdisciplinary problems afford challenging opportunities for thesis research and classroom instruction. Courses and thesis research guidance by the faculty of the Institute are provided either through the graduate programs in chemical physics and in applied mathematics* or under the auspices of other departments. Students interested in studying with Institute faculty members should direct inquiries to the Director, Institute for Physical Science and Technology, College Park, MD 20742.

Current topics of research interest in the Institute include optical physics, statistical mechanics, chemical physics, physics of upper atmosphere and magnetosphere, fluid dynamics, physical oceanography, various aspects of space and planetary science, theoretical and applied numerical analysis, chaotic dynamics, and the history of science. The Institute administers the Graduate Program in Chemical Physics, which provides courses, seminars, and research direction for graduate students in the general area of chemical physics. Further information may be obtained from the Director of the Chemical Physics Program at (301) 454-3839.

The Institute sponsors a wide variety of seminars in the various fields of its interest. Principal among these are the general seminars in optical physics, statistical physics, applied dynamics, space science, numerical analysis, fluid dynamics, chemical physics, and history of science. Information concerning the seminars may be obtained by writing to the Director of the Institute, or by calling 454-2636.

Financial support for qualified graduate students is available through research assistantships funded by grants and contracts, and through teaching assistantships in related academic departments.

*See the separate listing for the Applied Mathematics Program in chapter 8 of this catalog.

COLLEGE OF EDUCATION (EDUC)

Benjamin Building 454-2011

Dean: Dale Scannell
Office of Student Services: Director of Student Services 454-2017

The College of Education is a professional college committed to advancing the science and art of education including the practices and processes which occur from infancy through adulthood in both school and non-school settings. The College mission is to provide preparation for current and future teachers, counselors, administrators, educational specialists, and other related educational personnel, and to create and disseminate the knowledge needed by professionals and policy makers in education and related fields

The College is organized into seven departments, three of which offer undergraduate majors in Teacher Education The Department of Curriculum and Instruction which offers early childhood, elementary, and secondary education programs; The Department of Industrial, Technological, and Occupational Education, and the Department of Special Education Admission to the teacher education programs in the above-mentioned departments is selective See admission requirements below

The professional sequences in the teacher education program are open only to students who have been admitted to a Teacher Education Major Students with other majors who have an interest in the area of education may wish to enroll in a variety of courses that deal with schooling, human development, learning styles and techniques, and interaction processes The Department of Industrial, Technological, and Occupational Education also offers an Industrial Technology major leading to a career in industry

In carrying out its mission, the College is committed to a society which is open to and supportive of the educational aspirations of the widest population of learners and to continuous research and evaluation in relation to teaching and learning in a multicultural, high technology society At times, students may be invited to actively participate with graduate students and faculty members in research undertakings and evaluation processes Students also make use of the micro-teaching laboratory, the education technology and computer laboratory, and the curriculum laboratory.

In addition to the University Studies program, education majors have the opportunity to complete 45 to 55 credit hours of work in the arts, sciences and/or humanities In the teacher education courses, students develop professional behaviors through active experiences in the college classroom and participate in exploring, learning and practicing with children and teachers in classrooms in the community The capstone experience of student teaching brings classroom theory and practice together into a personal set of professionally appropriate skills and processes.

Admission to Teacher Education. Applicants to the University of Maryland who have declared an interest in education are admitted to the University by the Office of Undergraduate Admissions as pre-education Majors. University of Maryland undergraduates can declare themselves pre-education majors at any time although it is recommended that this choice be made prior to completion of 45 credit hours. Pre-education majors receive advising by staff of their particular department regarding admission to the Teacher Education Program in the College of Education. All teacher education pre-majors must apply for admission to, and be admitted as students by, the College of Education in order to pursue the professional teacher education degree program.

For admission into a teacher education program, a student must (1) complete the USP Fundamental Studies requirements (six credits); (2) earn forty-five semester hours with an overall cumulative grade point average of at least 2.5 on a 4.0 scale (granted by UMCP or some other institution) in all coursework prior to enrollment in EDHD 300; and (3) have a satisfactory score on the language and mathematics segments of the California Achievement Test Level 20. Transfer students with more than 45 semester hours of previously earned credit and post-Bachelor's degree students must apply for admission to the College as early as possible Admission application forms are available in Room 1210 of the Benjamin Building Only those who are admitted are able to enroll in the professional education sequence.

A student who initially fails to meet the admission criteria may apply to the College whenever the criteria for admission are met, with the stipulation, however, that a student may take the CAT test a maximum of three times. A plan for becoming eligible for admission will be developed by the student and the department advisor. A Teacher Education Appeals Board will review appeals from students who do not meet the admission, advancement or retention criteria

Criteria for admission to the Teacher Education program apply to any teacher preparation program offered by the University of Maryland. Thus, students desiring a major in agriculture and extension education or a major in health or physical education should apply to the College of Education for admission to the professional program in Teacher Education

The professional education courses are restricted to degree-seeking majors. Students who are not enrolled in the College of Education but who, through an established cooperative program with another college are preparing to teach, must meet all admission, scholastic and curricular requirements of the College of Education.

Student Teaching. Once the student has been admitted into the professional program, required courses must be completed in an appropriate sequence leading to the required student teaching experience. Prior to assignment to student teaching all students in teacher preparation programs must (1) have maintained an overall grade point average of at least 2.5 with a minimum grade of C in every course required for the major; (2) have satisfactorily completed all other required course work in their program; (3) apply for student teaching to the Office of Laboratory Experiences one semester in advance; (4) be recommended by their department; and (5) have on file favorable ratings from prior supervised

experiences in school settings including evaluations on the EDHD 300 field experiences.

A certificate indicating freedom from tuberculosis and proof of immunization for measles (rubella) is required. This may be obtained from a private physician, a health department, or the campus Health Center.

The student teaching experience is for most students the final experience in a professional program preparing them for the beginning teaching years. This culminating phase of the teacher education program provides the prospective teacher with the opportunity to integrate theory and practice in a comprehensive, reality-based, experience. Student teaching placements, as well as all other field experiences, are arranged by the Office of Laboratory Experiences. Prior to receiving a student teaching placement, prospective student teachers must have been admitted to Teacher Education and have completed requirements as described in the previous section. In programs requiring more than one student teaching placement, the first placement must be satisfactorily completed before the student begins the succeeding placement.

Most student teaching placements and accompanying seminars are arranged in the Teacher Education Centers and other collaborative field sites jointly administered by the College of Education and participating school systems. The student teaching semester is a full-time commitment and interference with this commitment because of employment or coursework is not permitted. Living arrangements, including transportation for the student teaching assignments, are considered the responsibility of the student. Students should contact the Office of Laboratory Experiences if there are any questions regarding this policy.

Graduation Requirements. The degrees of Bachelor of Arts and Bachelor of Science are conferred by the College of Education. The determination of which degree is conferred is dependent upon the amount of liberal arts study included in a particular degree program. Minimum requirements for graduation are 120 semester hours. Specific departmental program requirements for more than the minimum must be fulfilled.

In addition to the University Studies program requirements and the specific requirements for each curriculum, the College requires that all majors complete EDHD 300, EDPA 301, and three semester hours of an approved speech course. A grade of C or better is required in all professional and professional coursework required for the major. An overall grade point average of 2.5 must be maintained after admission to Teacher Education. A grade of S is required in student teaching.

Exceptions to curricular requirements and rules of the College ofEducation must be recommended by the student's advisor and department chairperson, and approved by the dean.

Accreditation and Certification. All bachelor-degree teacher preparation programs are accredited by the National Council for Accreditation of Teacher Education and have been approved by the Division of Certification and Accreditation of the Maryland State Department of Education using standards of the National Association of State Directors of Teacher Education and Certification. Accreditation provides for reciprocal certification with other states that recognize national accreditation.

The Maryland State Department of Education issues certificates to teach in the public schools of the State. In addition to graduation from an approved program, the Maryland State Department of Education requires satisfactory scores on the National Teacher Exam (NTE) for certification. At the time of graduation, the College informs the Maryland State Department of Education of the graduate's eligibility for certification.

Special Resources and Opportunities. The College of Education offers many special resources and facilities to students, faculty, and the community. The Center for Educational Research and Development, Institute for the Study of Exceptional Children and Youth, The Music Educators National Conference Historical Center, The Reading Center and the Center of Rehabilitation and Manpower Services all are part of the College of Education. In addition, undergraduate education and pre-education majors are likely to find the following resources particularly useful:

The Student Services Office

1210 Benjamin Building, 454-2017

The Student Services Office provides academic advising support for pre-education and education students during admission, orientation, registration, graduation and certification. Pre-education majors and students who have been admitted to the College of Education receive academic advising through their departments.

The Office of Laboratory Experiences

1209 Benjamin Building, 454-2029

The Office of Laboratory Experiences (OLE) is the liaison unit between the College and the public school systems that serve as laboratories for the preparation of teachers. While the primary role of the OLE is to provide undergraduate students with sites for the student teaching and pre-student teaching classroom experience, the Office also operates in-service programs for teachers with the schools and facilitates research and staff development activities in the schools. Placement coordinators are available in the OLE to answer questions, provide orientation programs and arrange all field experience placements.

University Credentials Service, Career Development Center

3121 Hornbake Library, 454-2813/4

All seniors graduating in the College of Education (except Industrial Technology majors) are required to file credentials with the Career Development Center. Credentials consist of the permanent record of a student's academic preparation and recommendations from academic and professional sources. An initial registration fee enables the Career Development Center to send a student's credentials to interested educational employers, as indicated by the student.

Students who are completing teacher certification requirements, or advanced degrees and are interested in a teaching, administrative or research position in education may also file credentials. (This service is also available to alumni).

Other services include vacancy listing in secondary schools and institutions of higher learning, notifications of interest-related positions, on-campus interviews with state and out-of-state school systems, and descriptive information on school systems throughout the country.

Curriculum Laboratory

2230 Benjamin Building, 454-5466

The Curriculum Laboratory is a model learning resource center serving the information needs of preservice and inservice teacher education students. Included in the collection are curriculum guides, reference and professional books, elementary and secondary textbooks, exemplary instructional materials, research documents, standardized test specimens, and professional journals.

Educational Technology Center

0307 Benjamin Building, 454-4017

The Educational Technology Center is designed as a multi-media facility for students and faculty of the college. It distributes closed-circuit television throughout the building, provides audio-visual equipment and service, a computer terminal, a learning lab, and instruction in all aspects of instructional materials, aids, and new media. Production and distribution rooms and a studio are available for closed-circuit television and a video tape system. Laboratories are available for graphic and photographic production with facilities for faculty research and development in use of instructional media. Supporting the professional faculty in the operation of the center are media specialists.

Mathematics Center

2304 Benjamin Building, 454-7443

The Mathematics Center provides a mathematics laboratory for undergraduate and graduate students, and a program of clinical diagnostic and corrective/ remedial services for children. Clinic services are a part of a program in elementary school mathematics at the graduate level.

Center for Young Children

1229 Benjamin Building, 454-2341

The Center for Young Children, a demonstration nursery-kindergarten program providing child care for the University community (1) serves as a center in which individual professors or students may conduct research, (2) serves as a unit for undergraduate students to have selected experiences with young children, such as student teaching, child study and observation of young children, (3) provides a setting in which educators from within and without the University can come for sources of ideas relative to the education of young children.

Science Teaching Center

0227 Benjamin Building, 454-2024

The Science Teaching Center has been designed to serve as a representative facility of its type to fulfill its functions of undergraduate and graduate science teacher education, science supervisor training, basic research in science education, aid to inservice teachers and supervisors, and consultative services, on all levels, kindergarten through community college. Its reference library features relevant periodicals, science and mathematics textbooks, new curriculum materials, and works on science subjects and their operational aspects. Its fully equipped research laboratory, in addition to its teaching laboratories for science methods courses, provides project space for both faculty and students.

Since 1962 the Science Teaching Center has served as the headquarters for the activities of the Science Teaching Materials Review Committee.

of the National Science Teachers Association, The Information Clearinghouse on Science and Mathematics Curricular Developments, the International Clearinghouse for A A A S., N S F , and UNESCO, started here that year also Within the center is gathered the "software" and "hardware" of science education in what is considered to be one of the most comprehensive collections of such materials in the world

Student and Professional Organizations

The college sponsors a chapter of Phi Delta Kappa, a Student National Education Association, and a Chapter of Kappa Delta Pi, an Honorary Society in education A student chapter of the Council for Exceptional Children is open to undergraduate and graduate students in Special Education. A student chapter of the Music Educators National Conference (MENC) is sponsored by the Department of Music, and the Industrial Education Department has a chapter of the American Society of Tool and Manufacturing Engineers and a chapter of the American Industrial Arts Association

In several departments there are informal organizations of students Students should contact theh individual departments for additional information.

COLLEGE OF ENGINEERING (ENGR)

1131 Engineering Classroom Building, 454-2421

Dean: George E. Dieter
Undergraduate Student Affairs: 454-2421
Cooperative Engineering Education: 454-5191
Center for Minorities in Science and Engineering: 454-7219

The mission of the College of Engineering is to provide quality engineering education, with sufficient scope to include both fundamental and specialized engineering training, so that its graduates are prepared to serve both the current and emerging needs of society. Just as the boundary between the functions of engineers and applied scientists or mathematicians is becoming less distinct, the various branches of engineering increasingly interact as technical problems become more sophisticated and require interdisciplinary approaches to their solutions. In addition to its teaching role, the College feels a related responsibility to conduct strong research programs that contribute to the advancement of knowledge.

Engineers also occupy an intermediary position between scientists and the public, because in addition to understanding scientific principles, they are concerned with the timing, economics, and values that define the use and application of those principles. With this in mind the College fosters a close partnership with industry and government, and also reaches out to both the campus community and the community at large with its services.

Entrance Requirements

Preparation for pursuing an engineering degree curriculum begins in the freshman or sophomore year of high school. The time required to complete the various degree programs may be extended beyond the four years cited in this catalog to the extent that incoming students may be deficient in their high school preparation. Therefore, students interested in studying engineering should enroll in the appropriate academic program in high school This course of study should include 3-1/2 to 4 years of college preparatory mathematics (including algebra, geometry, trigonometry, and pre-calculus mathematics). In addition, students should complete one year each of physics and chemistry.

Admission to the College of Engineering is competitive for both freshmen and transfer students. Applicants who have designated a major within the College of Engineering will be selected for admission on the basis of academic promise and available space. Because of space limitations, the College of Engineering may not be able to offer admission to all qualified applicants. The College Park campus urges early application. Applicants admissible to the University but not to the College will be offered admission to pre-engineering A pre-engineering major does not assure eventual admission to the College of Engineering For consideration of appeals for admission contact the Office of Undergraduate Admissions. Minority and women students are encouraged to apply for admission.

Freshmen

Freshmen applicants who have designated a major offered within the College of Engineering will be selected for admission directly to the College on the basis of SAT scores and GPA earned in academic subjects during the 9th, 10th, and 11th grades. A minimum combined SAT score of 1100* (with at least 580* on the mathematics portion) and a 3.0* cumulative GPA will be required for all majors except electrical engineering Direct admission to electrical engineering requires a combined SAT score of 1250* (with at least 650* on the mathematics portion) and a 3.5* cumulative GPA

Academically talented freshmen are admitted directly to the College We define these as 1) National Merit and National Achievement Finalists and Semifinalists, 2) Maryland Distinguished Scholar Finalists, 3) Chancellor or Banneker Scholars, and 4) students having participated in the "Study in Engineering" and the "Minority Scholars in Computer Science and Engineering" summer programs

Transfer

All new transfer students, as well as students currently enrolled at the College Park campus asking to be admitted to the College of Engineering must meet the competitive admission requirements in effect for the semester in which they plan to enroll The requirements for admission to aerospace, agricultural, chemical/nuclear, civil, fire protection, mechanical, pre-electrical, undecided, and undesignated engineering are

1. Minimum Cumulative GPA
   3.0* Maryland Residents
   3.2* Out-of-State
   3.5* International
2. Completion of the following five prerequisite courses or their equivalents with a minimum grade of "C" in each: MATH 140, MATH 141, CHEM 103, CHEM 113, and PHYS 161
3. Completion of 28 semester hours, including ENGL 101 Introduction to Writing

The requirements for admission to electrical engineering are:

1. Minimum Cumulative GPA. 3.0.
2. Completion of the following 49 credits (14 courses) with a minimum cumulative GPA for these courses of 3.0*

CHEM 103	ENES 101	MATH 140
CHEM 113	ENES 110	MATH 141
PHYS 161	ENES 221	MATH 241
PHYS 262	ENEE 204	MATH 246
PHYS 263	ENES 240	

Special Notes

1. Students with a previous B.A. or B.S. degree will be admitted to the College of Engineering with a minimum GPA of 3.0* and completion of the five prerequisites (MATH 140, MATH 141, CHEM 103, CHEM 113, and PHYS 161).
2. UMBC and UMES students will be admitted to the College of Engineering with official verification of their enrollment in engineering programs at their respective universities.
3. Maryland community colleges and Northern Virginia Community College students who meet the freshmen admission requirements but choose to attend a community college have the following options.
   A Remain at the community college in an articulated engineering program and complete at least 56 credits, after which time the student will be admitted to the College on application provided that he/she has at least a 2.0* GPA at the community college (This will apply to all majors within the College except electrical engineering) The student must supply the high school transcript and SAT scores. In the event that the community college does not offer a 56-credit articulated engineering program, the student may transfer earlier
   B Transfer immediately to the College (except electrical engineering) provided the student has completed the five required courses (MATH 140, MATH 141, CHEM 103, CHEM 113, and PHYS 161) and meets the competitive GPA for the semester of intended enrollment on the College Park campus.

*Please Note That These Figures Are Subject To Change Each Semester

Graduation Requirements

Structure of Engineering Curricula

Courses in the normal curriculum or program and prescribed credit hours leading to the degree of Bachelor of Science (with curriculum designation) are outlined in the sections describing each department in the College of Engineering No student may modify the prescribed number of hours without special permission from the Dean of the College. The courses in each curriculum may be classified in the following categories.

1. Courses in the University Studies Program Requirements
2. Courses in the physical sciences — mathematics, chemistry, physics.
3. Related technical courses — engineering sciences and other courses approved for one curriculum but offered by another department.
4. Courses in the major department. A student should obtain written approval for any substitution of courses from the department chair and the Dean of the College. The courses in each engineering curriculum,

as classified below, form a sequential and developmental pattern in subject matter. In this respect, curricula in engineering may differ from curricula in other colleges. Some regulations which are generally applicable to all students may need clarification for purposes of orderly administration among engineering students (see the Academic Regulations section of this catalog). Moreover, the College of Engineering establishes policies which supplement the University regulations.

College Regulations

1. The responsibility for proper registration and for satisfying stated prerequisites for any course must rest with the student — as does the responsibility for proper achievement in courses in which the student is enrolled. Each student should be familiar with the provisions of this catalog, including the Academic Regulations.
2. Required courses in mathematics, physics, and chemistry have highest priority; and it is strongly recommended that every engineering student register for mathematics and chemistry — or mathematics and physics — each semester until the student has fully satisfied requirements of the College of Engineering in these subjects.
3. To be eligible for a bachelor's degree in the College of Engineering, a student must have an overall average of at least a C — 2.0 and a grade of C or better in all engineering courses (courses with an EN prefix). Responsibility for knowing and meeting all graduation requirements in any curriculum rests with the student.
4. All students are required to complete a number of general education courses and must follow the University's requirements regarding completion of the University Studies Program. Consult the Academic Regulations section of this catalog for additional information. Engineering students who begin college level work (either at The University of Maryland or at other institutions) during the Fall 1988 semester are required to complete a junior level English course (with the exception of Agricultural Engineering students) regardless of their performance in Freshmen English classes. This represents a College policy, not a University-wide policy. Students beginning college level work in the Fall 1988 semester must also plan their University Studies Program courses to reflect depth as well as breadth. They should plan to take at least two courses (preferably a lower level and upper level course) which follow a theme area or provide more than simply introductory level study in one general studies department of their choice.
5. All degree programs in the College of Engineering require a minimum of 120 credits plus satisfaction of all department, college, and University Studies Program requirements. Students should be aware that for all currently existing engineering programs the total number of credits necessary for the degree will exceed 120 by some number that will depend on the specific major and the student's background.

Curricula for the various engineering departments are given in this catalog to illustrate how the programs can be completed in four years. These curricula are rigorous and relatively difficult for the average student. Surveys have shown that only about one-third to one-half of the students actually receive an engineering degree in four years. The majority of students (whether at Maryland or at other engineering schools nationwide) complete the engineering program in four and one-half to five years. It is quite feasible for a student to stretch out any curriculum; this may be necessary or desirable for a variety of reasons. However, students should seek competent advising in order to ensure that courses are taken in the proper sequence.

All students are urged to speak to a counselor in the College of Engineering Student Affairs Office at least two semesters before graduation to review their academic progress and discuss final graduation requirements.

Advising. Advising is available on a walk-in basis Monday -Friday, 8:30 a.m. - 12:00 noon and 1:00 p.m. - 4:30 p.m. in the College of Engineering Student Affairs Office, Room 1131, Engineering Classroom Building, 454-2421. The Freshmen Advising Center is also located in the Student Affairs Office. In addition, advising is available in the departments — see advising section in your specific engineering department for times and location.

Department and Degrees. The College of Engineering offers the degree of Bachelor of Science in the following fields of study:

Aerospace Engineering
Agricultural Engineering (see also College of Agriculture)
Chemical/Nuclear Engineering
Civil Engineering
Electrical Engineering
Fire Protection Engineering
Mechanical Engineering
Undesignated Engineering (Engineering Option and Applied Science Option)

All of the above programs are accredited by The Engineering Accreditation Commission of The Accreditation Board for Engineering and Technology except the Applied Science Option of the Undesignated Engineering degree.

The Freshman-Sophomore Years

The freshman and sophomore years in engineering are designed to lay a strong foundation in mathematics, physical sciences, and the engineering sciences upon which the student will later develop a professional program during the upper division (junior and senior) years. The College course requirements for the freshman year are the same for all students, regardless of their intended academic program, and about 75 percent of the sophomore year course requirements are common, thus affording the student maximum flexibility in choosing a specific engineering specialization.

Engineering Sciences

Engineering Science courses represent a common core of basic material offered to students of several different departments. All freshman and sophomore students of engineering are required to take ENES 101 and ENES 110. Other ENES courses, 220, 221, 230, and 240, are specified by the different departments or taken by the student as electives. The responsibility for teaching the engineering science courses is divided among the aerospace, civil, mechnical, chemical, and electircal engineering departments. In addition to the core courses noted above, several courses of general interest to engineering or non-engineering students have been given ENES designations. See the List of Approved Courses in this catalog for further descriptions of these courses.

Freshman Curriculum

All freshmen in the College of Engineering are required to complete the following basic curriculum regardless of whether the student plans to proceed through one of the designated baccalaureate degree programs or follow any of the multidisciplinary nondesignated degree curricula that are sponsored by the College.

	Semester Credit Hours	
	I	*II*
CHEM 103, 113 — General Chemistry I, II	4	4
PHYS 161 — General Physics		3
MATH 140, 141 — Calculus I, II	4	4
ENES 101 — Introductory Engineering Science	3	
ENES 110 — Statics		3
University Studies Program Requirements	6	3
ENGL 101 — Introduction to Writing* (Freshman English)		
Total Credits	17	17

* ENGL 101 - Freshman English must be attempted before completion of thirty (30) credit hours.

Entering freshmen's math placements are determined by performance on math placement exams. Placement in MATH 002 or MATH 115 will delay by a semester eligibility to take certain engineering courses.

Sophomore Year

During the sophomore year the student selects a sponsoring academic department (Aerospace, Agricultural, Chemical/Nuclear, Civil, Electrical, Fire Protection, or Mechanical Engineering) and this department assumes the responsibility for the student's academic guidance, counseling, and program planning from that point until the completion of the degree requirements of that department as well as the College. For the specific requirements, see the curriculum listing in each engineering department.

Engineering science courses represent a common core of basic material offered to students of several different departments. All freshmen and sophomore students of engineering are required to take ENES 101 and ENES 110. Other ENES courses 220, 221, 230, and 240 are specified by the different departments. The responsibility for teaching the engineering science courses is divided among the Chemical/Nuclear, Civil, Electrical, and Mechanical Engineering Departments. In addition to the core courses noted above, several courses of general interest to engineering or non-engineering students have been given ENES designations.

Engineering Transfer Programs

Most of the community colleges in Maryland provide one- or two-year programs which have been coordinated to prepare students to enter the sophomore or junior year in engineering at The University of Maryland. These curricula are identified as Engineering Transfer Programs in the catalogs of the sponsoring institutions. The various associate degree programs in technology do not provide the preparation and transferability into the professional degree curricula as the designated transfer programs.

A maximum of one-half of the degree credits (sixty to sixty-five semester hours) may be transferred from a two-year community college program.

There may be six to eight semester hours of major departmental courses at the sophomore level which are not offered by the schools

participating in the engineering transfer program. Students should investigate the feasibility of completing these courses in summer school at the University of Maryland before starting their junior coursework in the fall semester.

Dual Degree Program

The Dual Degree Program is a cooperative arrangement between the College of Engineering and selected liberal arts colleges which allows students to earn undergraduate degrees from both institutions in a five-year program. A student in the Dual Degree Program will attend the liberal arts college for approximately three academic years (minimum ninety semester hours) and the College of Engineering at The University of Maryland for approximately two academic years (minimum hours required — determined individually — approximately sixty semester hours).

Dual degree candidates may participate in any of the baccalaureate degree programs in the College of Engineering.

At the present time the participating institutions in Maryland and the District of Columbia are American University, Bowie State University, Columbia Union College, Coppin State College, Frostburg State University, Morgan State University, College of Notre Dame of Maryland, St. Mary's College of Maryland, Salisbury State University, Towson State University, Western Maryland College, Trinity College, and Washington College. Also participating in the program are Kentucky State University, King College in Tennessee, Shippensburg State University in Pennsylvania, and Xavier University in Louisiana.

Financial Assistance: The College of Engineering awards some merit-based scholarships. These awards are designated primarily for juniors and seniors in the College. Students must submit an application by February 15, including all supporting documents, in order to be considered for scholarship assistance for the ensuing year. For additional information, contact the Student Affairs Office, Room 1131, Engineering Classroom Building, 454-2421.

Honors. The College of Engineering offers an Engineering Honors Program that provides eligible students the opportunity to pursue an enriched program of studies which will broaden his or her perspective and increase the depth of his or her knowledge. This program is available to students who meet the following criteria:

1. 3.5 overall GPA
2. 3.5 engineering GPA
3. Junior standing or 65 applicable credits.

In completing the program, all engineering Honors students must:

1. Submit an Honors research project necessitating a paper and oral presentation worth three hours of credit
2. Successfully complete two semesters of the Engineering Honors Seminar (ENES 388, 1 credit each)
3. Maintain a 3.3 GPA

For additional information, contact the Student Affairs Office, Room 1131, Engineering Classroom Building, 454-2421.

Research and Service Units.

The Center for Minorities in Science and Engineering

1134 Engineering Classroom Building. Telephone: (301) 454-7219

Director: Rosemary L. Parker (Acting)

The Center is dedicated to increasing the graduation rates for black, hispanic, and native American students majoring in engineering and computer science. It provides minority students with academic advising and free tutorial assistance in mathematics, chemistry, physics, engineering, and computer science.

Through its scholarship and mentor program, the Center builds partnerships with various public and private organizations. The mentor program is designed to help minority students learn about their disciplines from professionals working in the field and organizations to identify engineering students for employment upon graduation.

Cooperative Engineering Education

1137 Engineering Classroom Building. Telephone: (301) 454-5191

Director: Heidi Winick Sauber

Cooperative education (co-op) is an optional academic program that combines classroom theory with career-related work experience. Through co-op, students alternate semesters of full-time study with semesters of full-time paid employment for a total of fifty work weeks. Co-op is designed to enhance a student's academic training, professional growth, and personal development. Co-op students earn a Bachelor of Science degree with co-op distinction and complete the same academic requirements as all other students.

The benefits of co-op include: 1) Integration of theory and application, bringing new meaning to classroom studies and work experiences; 2) Professional level experience to offer potential employers after graduation; 3) Confirmation of career decisions and invaluable professional contacts; 4) Development of leadership skills and self-confidence; and 5) Ability to finance educational expenses.

Students are eligible after completing their freshman and sophomore engineering requirements provided they maintain a minimum 2.0 grade point average. All students are expected to work for the same employer throughout their co-op assignments so that they can be given progressively increased levels of responsibility.

Instructional Television System

2104 Engineering Classroom Building. Telephone: (301) 454-5190

Director: Arnold E. Seigel

The University of Maryland's Instructional Television System (ITV) is headquartered in the College of Engineering. Each semester, over fifty regularly scheduled graduate and undergraduate classes are held in ITV's studio classrooms and broadcast "live" to government agencies and businesses in the greater Washington and Baltimore area. Students in the remote classrooms watch the broadcasts on large TV monitors. They are able to talk to the instructors and other students using a phone-line "talk back" system. Through the ITV system, working adult students are able to progress toward graduate degrees, primarily in engineering and computer science, without leaving their places of work.

Student Organizations.

Professional Societies. Each of the engineering departments sponsors a student chapter or student section of a national engineering society. The student chapters sponsor a variety of activities including technical meetings, social gatherings, and College or University service projects. Students who have selected a major are urged to affiliate with the chapter in their department.

These organizations are:

- American Helicopter Society
- American Institute of Aeronautics and Astronautics
- American Institute of Chemical Engineers
- American Nuclear Society
- American Society of Agricultural Engineers
- American Society of Civil Engineers
- American Society of Mechanical Engineers
- Black Engineers Society
- Institute of Electrical and Electronic Engineers
- Society of Asian Engineers
- Society of Automotive Engineers
- Society of Fire Protection Engineers
- Society of Hispanic Engineers
- Society of Women Engineers

Engineering Honor Societies. The College of Engineering and each of the engineering departments sponsors an honors society. Nominations or invitations for membership are usually extended to junior and senior students based on scholarship, service and/or other selective criteria. Some of the honors organizations are branches of national societies, others are local groups.

- Tau Beta Pi - College Honorary
- Alpha Epsilon - Agricultural Engineering
- Alpha Nu Sigma - Nuclear Engineering
- Chi Epsilon - Civil Engineering
- Eta Kappa Nu - Electrical Engineering
- Omega Chi Epsilon - Chemical Engineering
- Pi Tau Sigma - Mechanical Engineering
- Salamander - Fire Protection Engineering
- Sigma Gamma Tau - Aerospace Engineering

Undergraduate Research Programs. Undergraduate research programs allow qualified undergraduate students to work with research laboratory directors in departments, thus giving the student a chance for a unique experience in research and engineering design. Projects in engineering allow undergraduate students to do independent study under the guidance of faculty members in an area of mutual interest. For more information contact your designated engineering department.

COLLEGE OF HUMAN ECOLOGY (HUEC)

1100 Marie Mount Hall, 454-2136

Dean: Dr. Laura S. Sims
Associate Dean: Dr. Effie Hacklander

The College of Human Ecology is an interdisciplinary professional school focused upon issues arising from the interrelationships and interactions between people and their environment. Human ecology is involved in developing, integrating, and applying technical knowledge and methodologies in the natural and behavioral sciences and in the arts and the humanities to the identification, analysis, and solution of societal problems.

The College of Human Ecology shares in the obligation of all higher education to provide a broad-based education for undergraduates and graduate students. The college provides a balance of professional education as well as experiences which benefit the individual personally as a functioning and contributing member of society.

Opportunities are provided through laboratory, practical and field experiences for making knowledge and innovative discovery more meaningful to the individual. Students are encouraged to transfer to the society-at-large new ideas and methods for more effective interaction within the social and physical systems in which we function.

Fields of study leading to a major in the College of Human Ecology are organized into three departments: Family and Community Development (FMCD), Human Nutrition and Food Systems (HNFS), and Textiles and Consumer Economics (TXCE).

Admissions. All students desiring to enroll in the College of Human Ecology must apply to the Director of Admissions of the University of Maryland-College Park. Two of the majors, Textile Marketing/Fashion Merchandising and Consumer Economics are selective admissions programs. Specific information concerning the selective admissionscan be obtained by contacting the Department of Textiles and Consumer Economics.

Degrees. The degree of Bachelor of Science is conferred for the satisfactory completion, with an average of C or better, of a prescribed curriculum of 120 academic semester hour credits. No grade below C is acceptable in the departmental courses which are required for a departmental major.

Curricula. A student may elect one of the following curricula, or a combination of curricula: experimental foods, dietetics, human nutrition and foods, foodservice administration, family studies, apparel design, textile marketing/fashion merchandising, textile science, or consumer economics.

All students in the College of Human Ecology, in addition to meeting the University Studies Requirements, are required to complete a series or sequence of courses to satisfy college and department requirements. The remaining courses needed to complete a program of study are elected by the student with the approval of his or her advisor.

The final responsibility of meeting all the requirements for a specific major rests with each individual student.

COLLEGE OF HUMAN ECOLOGY REQUIREMENTS
(for every student depending on the major)

	Credit Hours
Human Ecology Electives*	6
SOCY 100	3
PSYC 100	3
ECON 205 - Fundamentals of Economics or ECON 201 - Principles of Economics	3
SPCH 100, 107, or 125	3

*Human Ecology Electives to be taken in the college in the two departments other than the major department.

Advising. The College of Human Ecology maintains a Student Advising and Support Services Center in 1300 Marie Mount Hall. The Advise Center is open 8:30 - 4:30, Monday through Friday. Advising is mandatory for all students majoring in programs in Human Ecology. Students may walk in or make an appointment for advising by calling 454-0135.

COLLEGE OF JOURNALISM (JOUR)

Journalism Building, 454-2228

Dean and Professor: Reese Cleghorn
Associate Dean and Professor: Martin
Assistant Dean: Stewart
Professors: Beasley, Blumler, Crowell (Emeritus), Franklin, Gurevitch, J. Grunig, Hiebert, Holman, Levy
Associate Professors: Barkin, Zanot
Assistant Professors: L. Grunig, McAdams, Paterson, Roche, Smith, Stepp
Lecturers: Greenfeld, Keenan
Instructors: Kay, Rhodes

Lois Kay, Director of Career Development, Internship Coordinator
Frank Quine, Director of Development
Carroll Volchko, Director of Business Administration
Timothy McDonough, Associate Director of Development

Located just 9 miles from the nation's capital and 30 miles from the bustling commercial port of Baltimore, the College of Journalism at the University of Maryland is one of only six comprehensive journalism schools in the 10 states stretching from New York to Virginia — the nation's most populous region. But the College has a lot more than geography going for it. In a study by the Gannett Center for Media Studies at Columbia University, the College recently was designated one of "Eleven Exemplary Journalism Schools" nationwide — those that surpass others in criteria including teaching, research, facilities and job placement.

Founded in 1947, the College has been accredited for close to three decades by the Accrediting Council on Education in Journalism and Mass Communication. Since it is within easy reach of the offices of Washington and Baltimore newspapers and the Washington bureaus of news organizations such as *The New York Times*, the Associated Press and the major networks, it is an ideal place for the study of journalism and mass communication. Students have internship opportunities at a variety of media, nonprofit, government and international agencies. Talented adjunct faculty members are also tapped from these organizations to enhance curriculum offerings.

After successful completion of a basic writing and editing skills series, majors are provided the following sequences in which to focus their remaining journalism curriculum: News-Editorial, Public Relations, Broadcast News, Advertising. Within the News-Editorial Sequence emphases are provided in the areas of News, Magazine, Photojournalism and Science Communication.

Entrance Requirements.

Freshman Admission: A small number of academically talented freshmen are admitted directly to the College, but most students apply only after completing 28 credits. For direct admission as freshmen, students must be either recipients of University scholarships, or have earned both a minimum of 1200 on the SAT examination (with a minimum of 550 in the verbal section) and a 3.0 (on a 4.0 scale) academic grade point average in high school.

Upperclass Admission: The majority of students are admitted after having earned 28 credits with a minimum designated grade point average on all previous college level work. Of those credits, a "C" or better must have been earned in Freshman English. Students also must demonstrate English grammar skills competency by either passing the "Test of Language Skills" or the "Test of Standard Written English" or have earned at least a score of 22 on the American College Testing Program (ACT) English usage subsection. These criteria entitle theapplicant to "Provisional" journalism major status. Students have two semesters to become full majors by earning at least a "C" in Writing for the Mass Media (JOUR 201) together with maintaining the GPA set for admission which varies from time to time.

Pre-Journalism: Students not meeting the above criteria yet who are willing to work toward the admissions standards are permitted to register for "Pre-Journalism" status. "Pre-Journalism" is not a major but a program, and this status does not assure eventual admission to the College.

Graduation Requirements: Students are required to earn a minimum of 120 credits. Accrediting regulations require three-fourths of a student's coursework (a minimum of 90 credits) to be in areas other than mass communication (such as radio-television-film or speech) or journalism. The required public speaking course is exempt from this regulation. A grade of "C" or better must be earned in all journalism courses for which JOUR 201, Writing for the Mass Media, serves as a prerequisite.

Students are also required to demonstrate abstract thinking skills. As a measure, majors are offered either a language or mathematics option. Language skills must be demonstrated by taking coursework through the intermediate level. The Math option requires that students complete the following courses: statistics, calculus and computer science.

A minor consisting of four upper-level courses in a concentrated field is also required of Journalism majors. Finally, in addition to University graduation requirements, Journalism majors must complete additional liberal arts coursework with one course each in government and politics, public speaking, psychology and economics and one course in sociology, anthropology or history.

Advising: The Office of Student Services provides academic advising to majors on an appointment basis. To arrange for advising, call 454-2228 or stop by Room 1117 of the Journalism Building.

Pre-Journalism students are welcomed on a space-available basis. Otherwise, advising is provided in the College of Arts and Humanities in Francis Scott Key, Room 1111.

Departments and Degrees: The College of Journalism offers the B.S., M.A. and Ph.D. degrees. At the undergraduate level, students are required to specialize in one of the four sequences offered. All diplomas are in Journalism.

Field Work and Internship Opportunities: Supervised internships are required for the Public Relations (if academically qualified) and Advertising sequences along with the Photojournalism and Science Communication specializations within the News-Editorial sequence. Other students may

take advantage of an internship as a journalism elective. No more than four internship credits may be applied toward a student's degree. Ms. Lois Kay is the Coordinator of the Journalism Internship Program. The Internships Office is in Room 1118 of the College of Journalism and may be reached by calling 454-6939.

For students in the Broadcast News Sequence, opportunity to gain experience with a cable news program entitled "Tuesday Weekly" is presented within the curriculum.

Students may also earn internship or independent study credit through supervised experience gained at *The Diamondback,* the award-winning student daily newspaper for the College Park campus. Other co-op and volunteer experiences are available to Journalism students through the University's Office of Experiential Learning in Hornbake.

Student Organizations. The College sponsors student chapters of the Society for Professional Journalists (Sigma Delta Chi), the Public Relations Student Society of America and the Advertising Club. These organizations provide students with opportunities to practice skills, establish social relationships with other students both on and off, campus and meet and work with professionals in the field.

Campus media opportunities abound. The campus radio station is WMUC. The student daily publication is *The Diamondback.* Student newspapers of interest to special populations include *The Eclipse* and *Mitzpeh.*

Although no departmental honors program currently exists within the College, academically outstanding students are recognized through Kappa Tau Alpha, the Journalism academic honor society.

For information on the organizations listed, contact the Student Services Office in Room 1117 of the Journalism Building or call 454-2228.

Special Resources and Opportunities. The College owns the prestigious monthly *Washington Journalism Review,* with a national circulation of 30,000. Extensive career programs for professional journalists, including the Knight Center for Specialized Journalism, enhance the school's national prestige.

Students are informed about the College and special opportunities through a newsletter, *Deadline,* published monthly and available in the Lobby of the Journalism building and the Office of Student Services. The *Jobs Bulletin* is published regularly to inform students about full-time and part-time positions.

Accreditation. The College of Journalism became accredited in 1961 by the Accrediting Council on Education in Journalism and Mass Communications. Standards set by the Council are generated from professional and academic ethics and principles. This accrediting body underscores the liberal arts foundation of a journalism curriculum, limiting professional and skills courses to 1/4 of a student's academic program.

Journalism Academic Programs.

1. Required Core for all Journalism Majors:

Course:	*Credit:*
JOUR 001 Professional Orientation	0
JOUR 201 Writing for the Mass Media	3
JOUR 202 Editing for the Mass Media	3
JOUR 400 Law of Mass Communication	3
Minor in one field (numbered 300 or higher), (may not be in Speech or Radio-TV-Film)	12

A. *Advertising*

JOUR 340 Advertising Communication	3
JOUR 341 Advertising Techniques	3
JOUR 342 Advertising Media Planning	3
JOUR 396 Supervised Internship	3
JOUR 477 Mass Communication Research	3
At least one additional journalism course numbered 410-480	3
Journalism Elective (330, 484, 350, 372 recommended)	3

B. *Broadcast News Sequence Requirements*

JOUR 360 Broadcast News 1	3
JOUR 361 Broadcast News 2	3
JOUR 365 Theory of Broadcast Journalism	3
At least one additional journalism course numbered 410-480	3
Journalism and Radio-TV-Film electives (chosen with permission of advisor)	9

C. *Public Relations*

JOUR 330 Public Relations Theory	3
JOUR 331 Public Relations Techniques	3
JOUR 396 Supervised Internship	3
JOUR 477 Mass Communication Research	3
Advanced Writing Course (320, 360, 371 or 380 recommended)	3
Journalism Electives (333, 335, 483 and 350 recommended)	6

D. *News-Editorial Sequence*

i. News Specialization

JOUR 320 News Reporting	3
JOUR 350 Photojournalism or JOUR 373 Graphics	3
JOUR 321 Public Affairs Reporting or JOUR 322 Beats and Investigations	3
Advanced Writing and Reporting Course (323, 326, 328, 371 and 380 recommended)	3
Journalism Electives (396 recommended)	6

ii. Magazine Specialization

JOUR 320 News Reporting	3
JOUR 371 Feature Writing	3
JOUR 487 Literary Journalism	3
JOUR 396 Internship	3
Journalism Electives	6

iii. Science Communication Specialization

JOUR 320 News Reporting	3
JOUR 371 Feature Writing	3
JOUR 380 Journalism for Science and Technology	3
JOUR 481 Advanced Science Writing	3
JOUR 396 Internship	3
Journalism Electives (JOUR 330 recommended)	3

iv. Photo Journalism Specialization

JOUR 320 News Reporting	3
JOUR 350 Photojournalism	3
JOUR 351 Advanced Photojournalism	3
JOUR 373 Graphics	3
JOUR 396 Internship	3
Journalism Elective	3

v. Literary Journalism Specialization

JOUR 320 News Reporting	3
One of the following:	3
JOUR 326 News Commentary and Critical Writing	
JOUR 321 Advanced Reporting: Public Affairs	
JOUR 322 Advanced Reporting: Beats & Investigations	
JOUR 398 Independent Study	
JOUR 371 Magazine Article and Feature Writing	3
JOUR 440 Readings in Journalism Literature	3
JOUR 481 Writing the Complex Story	3
JOUR 487 Literary Journalism	3

COLLEGE OF LIBRARY AND INFORMATION SERVICES (CLIS)

Dean: Dr. Claude E. Walston

The College of Library and Information Services is a graduate program accredited by the American Library Association. The undergraduate portion of the program has been discontinued.

COLLEGE OF LIFE SCIENCES (LFSC)

1114 Symons Hall, 454-6332

Dean: Raymond J. Miller

The College of Life Sciences offers educational opportunities for students in subject matters relating to living organisms and their interaction with one another and with the environment. Programs of study include those involving the most fundamental concepts of biological science and chemistry and the use of knowledge in daily life as well as the application of economic and engineering principlesin planning the improvement of life. In

addition to pursuing the baccalaureate degree, a number of students in this college engage in preprofessional education in such fields as pre-medicine, pre-dentistry, and pre-veterinary medicine

The student may obtain a Bachelor of Science degree with a major in any of the departments and curricula listed below. Students in pre-professional programs may, under certain circumstances, obtain a B.S. degree following three years on campus and one successful year in a professional school. For additional information on combined degree programs, see Chapter 8 of this catalog.

The College of Life Sciences includes the following departments and programs.

a. Departments: Botany, Chemistry and Biochemistry, Entomology, Microbiology, Zoology
b. Program: General Biological Sciences

Admission. Requirements for admission to the college are the same as those for admission to the University. Application must be made to the Director of Admissions, The University of Maryland, College Park, Maryland 20742.

Students desiring a program of study in the College of Life Sciences should include the following subjects in their high school program: English, four units; college preparatory mathematics (algebra, plane geometry), four units; biological and physical sciences, two units; history and social sciences, one unit. They should also include chemistry and physics.

Advising. A faculty advisor will be designated to help select and design a program of courses to meet the needs and objectives of each entering student. As soon as a student selects a major field of study, an advisor representing that department or program will be assigned. All students must see their advisor at least once each semester.

Students following preprofessional programs will be advised by knowledgeable faculty. For further information on the pre-professional programs offered at College Park, see Chapter 8 of this catalog.

Area Resources. In addition to the educational resources on the campus, students with specific interests have an opportunity to utilize libraries and other resources of the several government agencies located close to the campus. Research laboratories related to agriculture or marine biology are available to students with special interests.

Degree Requirements. Students graduating from the college must complete at least 120 credits with an average of 2.0 in all courses applicable towards the degree. Included in the 120 credits must be the following:

1. University Studies Program Requirements (40 credits)
2. College Requirements

As of Fall 1988, all students in the College of Life Sciences must complete the following core curriculum:

CHEM 103,113, or 105, 115
CHEM 233,243 or 235, 245
MATH 220,221 or 140, 141
PHYS 121,122 or 141, 142
BIOL 105 and 106*

*Chemistry and Biochemistry majors substitute CHEM 321 in place of BIOL 106.

Honors Programs. Students may apply for admission to the honors programs of Botany, Chemistry, General Biological Sciences, Microbiology, and Zoology. On the basis of the student's performance during participation in the Honors Program, the department may recommend candidates for the appropriate degree with (departmental) honors, or for the appropriate degree with (departmental) high honors. Successful completion of the Honors Programs will be recognized by a citation in the Commencement Program and by an appropriate entry on the student's record and diploma.

COLLEGE OF PHYSICAL EDUCATION, RECREATION AND HEALTH (PERH)

3310 PERH Building, 454-5616

Dean: Dr. John J. Burt
Academic/Student Affairs, Associate Dean: Dr. Jerry Wrenn, 454-5616
Records: 454-3192

The College of Physical Education, Recreation and Health provides preparation leading to the Bachelor of Science degree in the following professional areas: Physical Education (three certification options), Health Education (school and community), and Recreation. The college also offers curricula in Kinesiological Sciences and Safety Education. In addition, each department offers a wide variety of courses for all University students. These courses may be used to fulfill the general education requirements and as electives.

Programs combining research, service and instruction are provided by the Children's Health and Developmental Clinic, the Adults' Health and Developmental Program, and the Sports Medicine and Physical Fitness Center. More detailed information regarding these program offerings is available through the individual departments.

Advising: At the time of matriculation and first registration, each student is assigned to a member of the faculty of the college who acts as the student's academic advisor. These assignments are made by the individual departments and depend upon the student's chosen major. Students who are enrolled in the college, but who are undecided regarding their major should contact the Associate Dean in Room 3310H of the PERH Building, the phone number is 454-3192.

Departments and Degrees: The College of Physical Education, Recreation and Health offers the baccalaureate degree in the following fields of study: Physical Education, Kinesiological Sciences, Health Education and Recreation. The degree of Bachelor of Science isconferred upon students who have met the conditions of their curricula as herein prescribed by the College of Physical Education, Recreation and Health.

Each candidate for a degree must file a formal application with the Registrations Office according to the scheduled deadlines for the anticipated semester of graduation.

Honors: Phi Alpha Epsilon. Honorary Society of the College of Physical Education, Recreation and Health.

The purpose of this organization is to recognize academic achievement and to promote professional growth by sponsoring activities in the fields of physical education, recreation and health, and related areas.

Students shall qualify for membership at such times as they shall have attained junior standing in physical education, recreation, or health and have a minimum overall average of 2.7 and a minimum professional average of 3.1. Graduate students are invited to join after ten hours of work with a 3.3 average. For additional information, please contact Dr. Donald Steel, 454-3382.

Special Resources and Opportunities: *Gymkana Troupe.* The Gymkana troupe is a group of highly disciplined young men and women who place a high priority on education and who engage in gymnastics for purposes of recreation, health and personal development. Each member has pledged himself or herself to a drug-free lifestyle in hopes of acting as a role model so others might be motivated to do the same. Gymkana travels throughout the United States during February and March, performing once a week and ending the season with its annual gymnastic performance at the University. Membership is open to all students regardless of their gymnastic ability. Gymkana is co-sponsored by the College of Physical Education, Recreation and Health and the Student Government Association. For additional information, please contact Dr. Joe Murray, 454-3358.

RESEARCH AND SERVICE UNITS

Center on Aging

Room 2304, PERH Building, 454-5393

Director and Professor: Dr. Laura B. Wilson
Associate Director: Dr. Edward F. Ansello
Associate Professor: Dr. James M. Hagberg
Research Associate: Dr. Mark R. Meiners

The Center on Aging stimulates and supports aging-related activities within existing departments, colleges, and schools throughout all of the various campuses of the University of Maryland. The center coordinates the Graduate Gerontology Certificate (Master's and Doctoral levels), the University's first approved graduate certificate program. The center assists undergraduate and graduate students interested in the field of gerontology and helps them to devise educational programs to meet their goals. It is a research center working in physiology, economics and policy. It also sponsorsa colloquium series on aging, conducts community education programs, assists faculty in pursuing research activities in the field of aging, publishes a newsletter, conducts conferences on adulthood and aging-related topics, and provides on- and off-campus technical assistance to practitioners who serve older adults.

For further information on any of the center's activities call, write or visit the Center on Aging.

Course Code Prefix: PERH

SCHOOL OF PUBLIC AFFAIRS (PUAF)

2105 Morrill Hall; 454-6193

Dean: Michael Nacht

The School of Public Affairs provides graduate-level, professional education to men and women interested in careers in public service. Five disciplines are emphasized: accounting, statistics, economics, politics, and ethics. Students specialize in issues of government/private sector interaction, national security and arms control, or public sector financial management.

The School offers separate degrees for pre-career and mid-career college graduates. Recent college graduates may enroll in the two year, fifty-one credit Master of Public Management (MPM) program. This program combines a rigorous applied course of study with practical, hands-on experience. The School also offers joint degree programs with the College of Business and Management (MPM/MBA) and the School of Law (MPM/JD), and accepts a small number of Ph.D. candidates each year.

Public sector employees with a minimum of three years' work experience seek the Master of Public Policy (MPP) degree. This is a part-time, three-year, thirty-six credit program. Individuals who wish to improve their analytical and management skills without pursuing a degree may enroll in several certificate programs.

For further information, call or write the School of Public Affairs.

8 Departments and Campus-Wide Programs

Accounting

For information, consult College of Business and Management entry

Aerospace Engineering (ENAE)

College of Engineering

0151 Engineering Classroom Bldg., 454-2426

Acting Chair and Professor: Chopra
Professors: Anderson, Donaldson, Gessow Melnik
Associate Professors: Barlow, Jones, Lee, Winkelmann
Assistant Professors: Celi, Leishman, Lewis, Vizzini
Lecturers: Agrawal, Billig, Chander, Chien, Korkegi, Lekoudis, Regan, Slabinski, Stanzione, Vamos, VanWie, Waltrup, Weissman, Winblade, Yanta

The Aerospace Major:

Aerospace engineering is concerned with the physical understanding, analysis, and design of aerospace vehicles operating within and above the atmosphere. Such vehicles range from helicopters and other vertical take-off aircraft at the low speed end of the flight spectrum to spacecraft operating at thousands of miles per hour during entry into the atmospheres of the earth and other planets. In between are general aviation and commercial transports flying at speeds well below and close to the speed of sound, and supersonic transports, fighters, and missiles which cruise at many times the speed of sound. Although each speed regime and each vehicle type poses its own special research, analysis and design problems, each can be addressed by a common set of technical specialties or disciplines.

These include ***aerodynamics***, the study of how and why airflow produces effects on temperature, forces, and moments; ***flight dynamics***, the study of the motion and flight path of vehicles; ***flight structures***, the study of the mechanical behavior of materials, stresses and strains, deflection, and vibration; ***flight propulsion***, the study of the physical fundamentals of how engines work; and the synthesis of all these principles into one system with a specific application — such as a complete transport aircraft or a missile — through the discipline of ***aerospace vehicle design***.

The facilities of the department include three subsonic wind tunnels (with sections ranging from 2 by 2 ft. to 7.75 by 11 ft), one supersonic tunnel, equipment for the static and dynamic testing of structural components, and a flight simulator. The Center for Rotorcraft Education and Research (CRER) has established some unique experimental facilities to test helicopter models in simulated environments, including an automated model rig and computer-controlled vacuum chamber. The Composite Research Laboratory (CORE) has the facilities necessary to the manufacturing, testing and inspection of composite materials and structures, including an autoclave, an x-ray machine, and a 220 Kip Uniaxial test machine with hydraulic grips. The department's computing facilities include four microcomputers, several Sun workstations and microcomputers and terminals providing access to the campus mainframes and several supercomputing centers.

Department of Aerospace Engineering Requirements

The Freshman curriculum is the same for all Engineering departments. Please consult the College of Engineering entry.

Sophomore Year	*I*	*II*
Univ. Studies Requirements	3	3
MATH 246 — Differential Equations	—	3
MATH 241 — Calculus III	4	—
PHYS 262, 263 — General Physics	4	4
ENES 240 — Engineering Computation	3	—
ENES 221 — Dynamics	—	3
ENAE 201, 202 — Introduction to Aerospace Engineering I, II	2	2
Total	16	15

Junior Year		
Univ. Studies Requirements	3	3
MATH 240 — Introduction to Linear Algebra	4	—
ENES 220 — Mechanics of Materials	3	
ENME 217 — Thermodynamics	—	3
ENEE 300 — Principles of Electrical Engineering	3	
ENAE 305 — Aerospace Laboratory I	—	3
ENAE 345 — Introduction to Dynamics of Aerospace Systems	—	3
ENAE 451, 452 — Flight Structures I, II	4	3
ENAE 371 — Aerodynamics I	—	3
Total	17	16

Senior Year	
ENAE 471 — Aerodynamics II	3
ENAE 475 — Viscous Flow and Aerodynamic Heating	3
ENAE 401 — Aerospace Laboratory II (Fall)	2
ENAE 402 — Aerospace Laboratory III (Spring)	1
ENAE 461 — Flight Propulsion I	3
Univ. Studies Requirements	9
Elective [1]	3
Applied Dynamics Elective [2]	3
Aerospace Elective [3]	3
Technical Elective [4]	3
Total	33

Minimum Degree Credits — 120 credits and the fulfillment of all Department, College, and University requirements.

[1] The students shall take one of the following design courses
ENAE 411 Aircraft Design (fall)
ENAE 412 Design of Aerospace Vehicles (spring)

[2] The student shall take one course which utilizes dynamics in a system analysis. The following courses are offered.
ENAE 445 Stability and Control of Aerospace Vehicles (fall)
ENAE 355 Aircraft Vibrations (spring)
ENAE 488E Aerospace Control Systems

[3] Three credits must be taken from elective courses offered by the Aerospace Engineering Department. Currently offered courses are
ENAE 415 Computer-aided Structural Design Analysis (Spring)
ENAE 453 Matrix Methods in Computational Mechanics (fall)
ENAE 473 Aerodynamics of High-Speed Flight (not offered every year)
ENAE 488 Topics in Aerospace Engineering
ENAE 499 Elective Research

Courses listed under 2 and 3 above and which are not used to meet the requirements of 2 and 3 may be elected to fulfill requirement 4.

[4] Courses available as Aerospace electives may be used as the technical elective. The Department maintains a list of acceptable technical electives. Generally they must be 400 level courses to be considered.

Admission: Admission requirements are identical to those set by the College of Engineering (see College of Engineering section on Entrance Requirements).

Advising: Advising is mandatory and is determined by departmental faculty listings in the main office at x2426

Financial Assistance: The department offers Glenn L Martin Scholarships and a Zonta Scholarship Students may obtain information/application forms in the main office at x2426.

Honors and Awards: The Department offers the following awards Academic Achievement Award for highest overall academic average, R M Rivello Scholarship Award for highest overall academic average; Sigma Gamma Tau Outstanding Achievement Award for scholarship and service to the Student Chapter; American Helicopter Society Outstanding Achievement Award for service to the student chapter, American Institute of Aeronautics and Astronautics Outstanding Achievement Award for scholarship and service to the student chapter, Morton Thiokol Award for completion of junior year with highest grade point average Eligibility criteria are available in department office

Student Organizations: American Institute of Aeronautics and Astronautics, Sigma Gamma Tau and American Helicopter Society; students may obtain information on membership at the Lounge in the Engineering Laboratory Building

COURSE CODE PREFIX: ENAE

Afro-American Studies Program (AASP)

College of Behavioral and Social Sciences

2169 Lefrak Hall. Phone: 454-5665.

Professor and Director: Myers* (Economics)
Associate Professor: Harley
Assistant Professors: Lashley, R Williams* (Economics)
Lecturers: E. Carson, Chan, Cornelius, Felder, Hill, Rugumamu, Sabol, Smead
Affiliate Faculty: Billingsley* (Family and Comm. Dev.), Holman* (Journalism), Perinbam* (History), O. Williams* (Nyiumburu)

*Joint appointment with unit indicated

The Afro-American Studies Program offers a Bachelor of Arts degree in the interdisciplinary study of the life and history of blacks in America Built on a curriculum that places special emphasis on the relevance of social, political and economic institutions to blacks and their communities, the program prepares students to apply analytic, social science skills to seeking solutions to the pressing socio-economic problems confronting the black community in the United States

Two program options lead to the Bachelor of Arts degree. Both require a twelve-credit core that concentrates on Afro-American history and culture or on public policy and the black community.

The **general concentration** requires 18 additional credit hours in one or more specialty area within Afro-American Studies such as history, literature, government and politics, sociology or anthropology, as well as departmental seminars and a thesis.

The **public policy concentration,** requiring competencies in analytic methods, such as economics and statistics, trains students to develop specialized knowledge and abilities in solving problems affecting minority communities Substantive areas of study include the family, criminal justice, employment, health care, discrimination, urban development, as well as other related topics An internship and departmental seminars complete the requirements for this option.

Major Requirements:

Core:
AASP 100, 200, 202; and either 300 for the general concentration or 428J for the policy concentration.

General Concentration:
In addition to the core requirements, 18 credits of AASP Upper Division Electives (300-400 numbers), AASP 401 and AASP 397.

Public Policy Concentration:
In addition to the core, three credits of statistics (e.g., STAT 100 or SOCY 201), three credits of elementary economics (ECON 201 or 205), nine credits of AASP electives in the policy area (AASP numbers 300-400), AASP 428K and 397

Afro-American Studies Program

PUBLIC POLICY CONCENTRATION

Freshman Year (30 credits)

Fall	*Cr.*	*Spring*	*Cr.*
AASP 100	3	AASP 298	3
ENGL 101	3	MATH 110	3
USP (Distrib.)	6	USP (Distrib.)	6
Elective	3	Elective	3

Sophomore Year (30 credits)

Fall	*Cr.*	*Spring*	*Cr.*
AASP 202	3	AASP 300	3
USP (Distrib.)	6	USP (Distrib.)	6
ECON 201 (or 205)	3	STAT 100 (or SOCY 201)	3
Elective	3	Elective	3

Junior Year (30 credits)

Fall	*Cr.*	*Spring*	*Cr.*
AASP 428J	3	AASP Major Electives	6
ENGL 391 (or 393)	3	Electives	6
ADV USP	3	ADV USP	3
Electives	6		

Senior Year (30 credits)

Fall	*Cr.*	*Spring*	*Cr.*
AASP 401	3	AASP 397	3
AASP Major Elective	3	AASP 386	3
Electives	9	Electives	9

NOTE: This suggested curriculum is as broad as possible in order to tailor USP requirements and electives to the individual student's needs and course of study.

Each course counted toward completion of the requirements must be passed with a grade of C or better Related and supporting courses in other departments must be approved by a faculty advisor

The Afro-American Studies Program offers three options for students who major in another department First, students may obtain a certificate by completing twenty-one hours of course work with an emphasis on black life and experience. Second, the AASP will offer assistance in finding students internships. Third, the AASP is the supporting area for Computer Science majors, as well as other fields such as pre-Business or pre-Engineering Students may also designate Afro-American Studies as the alternate major.

Admission and Advising

Undergraduates in good standing may enroll in the Afro-American Studies Program or obtain more information about any of the options by contacting Mrs. Gills, Assistant Advisor, Afro-American Studies Program, 2169 Lefrak Hall, phone: (301) 454-5665.

Course Code Prefix — AASP.

Agricultural Chemistry (AGCH)

College of Agriculture

454-6332

This curriculum combines the fundamentals of chemistry with flexibility through electives to prepare the student for graduate work in agricultural and life sciences programs, technical work in government and private research and quality control laboratories, and production and sales work in specialized chemical industries and food production and processing industries.

Program revisions are under consideration. Each student should see an advisor.

	Semester Credit Hours
University Studies Program requirements*	30
Major Requirements:	
CHEM 103 — General Chemistry I or CHEM 105	4
CHEM 113 — General Chemistry II or CHEM 115	4
CHEM 233 — Organic Chemistry I or CHEM 235	4
CHEM 243 — Organic Chemistry II or CHEM 245	4
CHEM 321 — Quantitative Analysis	4
Eight Credits from the Following Courses:	
AGRO 302 — General Soils	4
BOTN 221 — Plant Pathology	4
ENTM 204 — General Entomology	4
GEOL 100 — Physical Geology	3
GEOL 110 — Physical Geology Laboratory	1
Additional Requirements:	
MATH 140 — Analysis I	4
MATH 141 — Analysis II	4
PHYS 141 — Principles of Physics	4
PHYS 142 — Principles of Physics	4
Electives in Biology	6

Approved Agricultural Electives, chosen from the following: any 400 level courses in CHEM or BCHM, FDSC 421 or 423, or ENTM 452*	12
Electives**	28

*These courses should be selected after consultation with the Agricultural Chemistry Advisor. The advisor may approve other courses, in special cases, to meet the career objectives of the student.
**Six to ten of the elective credits must be for upper-level courses to meet the curriculum requirement of thirty-five credits of total upper-level work.

Course Code Prefix — CHEM

Agricultural Engineering (ENAG)

College of Agriculture

1130 Shriver Laboratory; 454-3901

The major in Agricultural Engineering is offered through both the College of Agriculture and the College of Engineering. Students enrolled in this program through the College of Agriculture are required to complete that College's core requirements in addition to the requirements defined in the program below. Students should consult their advisors.

Chair: Stewart
Professors: Harris, Johnson, Wheaton
Associate Professors: Grant, Ross, Stewart
Assistant Professors: Magette, Shirmohammadi
Instructors: Carr, Gird, Hochheimer, Smith
Senior Specialist: Brodie
Emeriti: Felton, Green, Krewatch, Merrick

The Agricultural Engineering Major: This program is for students who wish to become registered professional engineers but who are also seriously interested in biological systems and how the physical and biological sciences interrelate: the biological and the engineering aspects of plant, animal, food processing and natural resource systems are studied. Agricultural Engineering graduates are prepared to apply engineering, mathematical and computer skills to design systems and facilities within the food production and processing system, in the protection of the natural resources associated with this system and in other bioengineering applications. Graduates find employment in design, management, research, education, sales, consulting or international service.

Requirements for Major: The curriculum is composed of: (1) the required USP (general education) requirements of the institution; (2) a core of mathematics, physics, chemistry, and engineering sciences required of all engineering students; (3) sixteen credits of agricultural engineering design, and (4) twenty-two hours of electives to allow development of special student interests. Emphasis areas include aquacultural engineering, biological engineering, plant systems engineering, animal systems engineering, food process engineering and natural resources engineering.

Freshman Year

The Freshman curriculum is the same for all Engineering departments. Please consult the College of Engineering entry.

	Semester I	II
Sophomore Year		
MATH 241 — Analysis III	4	
MATH 246 — Differential Equations for Scientists and Engineers		3
PHYS 262, 263 — General Physics	4	4
ENES 220 — Mechanics of Materials	3	
ENES 221 — Dynamics		3
ENME 217 — Thermodynamics		3
Free Elective	3	
University Studies Program Requirements**	3	3
Total	17	16
*Junior Year***		
ENCE 300 (or ENME 401****) Engineering Materials	3	
ENME 342 (or ENCE 330) — Fluid Mechanics	3	
ENEE 300 — Principles of Electrical Engineering		3
ENCE 350 — Structural Analysis	3	
ENAG 454 — Biological Process Engineering		4
Technical Electives*****	4	6
University Studies Program Requirements**	3	3
Total	16	16
Senior year		
ENAG 421 — Power Systems	3	
ENAG 4444 — Functional Design of Machinery and Equipment		3
ENAG 422 — Soil and Water Engineering	3	
ENAG 424 — Functional and Environmental Design of Agricultural Structures		3
Technical Electives*****	3	3
Free Electives	3	
University Studies Program Requirements**	3	6
Total	15	15

Minimum Degree Credits — 120 credits and fulfillment of all Department, College and University requirements.

*Chem 105 may be substituted for CHEM 103 and CHEM 104 or CHEM 115 may be substituted for CHEM 113. Check with an advisor regarding the chemistry requirement before registering.

**Students must consult with an advisor on selection of appropriate courses for their particular area of study.

***No 300 level and above courses may be attempted without special permission until fifty-six credits have been earned.

****ENME 310 must be taken as a technical elective prerequisite or corequisite with ENME 401.

*****Technical electives, related to field of concentration, must be selected from a departmentally approved list. Nine credits must be 300 level and above. Agricultural Engineering students are exempt from ENGL 391, 393.

Admission: Students in agricultural engineering may enroll through either the College of Agriculture or the College of Engineering. However, all Agricultural Engineering Majors must meet admission, progress and retention standards of the College of Engineering.

Advising: Advising for Agricultural Engineering majors is mandatory. Call Ext. 3901 and ask to talk to an advisor to schedule an appointment.

Fieldwork/Internships: Contact Departmental academic advisors to arrange teaching or research internships.

Financial Assistance: The Department offers three scholarships specifically for Agricultural Engineering majors. Cooperative education (work study programs) are available through the College of Engineering. Part-time employment is available in the Department and in USDA laboratories located near campus.

Honors and Awards: Outstanding junior and senior students are recognized each year for scholastic achievement and for their contribution to the Department, College and University. Top students are selected for Alpha Epsilon, the Honor Society of Agricultural Engineering.

Student Organization: Students operate the professional club of the American Society of Agricultural Engineers. Academic advisors will tell you how to become a participant.

Course Code Prefix — ENAG

Agricultural Sciences, General (AGRI)

College of Agriculture

0102 Shriver Laboratory, 454-3901

Coordinator: L.P. Grant

Agriculture is a complex scientific field, encompassing all other scientific and professional fields. However, majoring in Agricultural Sciences does not require an agricultural background. Students in this major have backgrounds as varied as is the field itself. The Agricultural Sciences program is designed for students who are interested in a broad education in the field of agriculture. It is ideal for students who would like to survey agriculture before specializing, and for those who prefer to design their own specialized programs, such as International Agriculture or Agricultural Journalism. To supplement their classroom work, students in this major are encouraged to obtain summer positions that will provide technical laboratory or field experience in their chosen area.

Requirements	*Semester Credit Hours*
University Studies Program Requirements*	30
BIOL 105 General Biology I-4*	4
BIOL 106 General Biology II-4*	4
CHEM 103 — General Chemistry I	4
CHEM 104 — Fundamentals of Organic and Biochemistry or (CHEM 113 — General Chemistry II and CHEM 233 — Organic CHEM I)	4-8
MATH 115 or Higher*	3
ENAG 100 — Basic Agricultural Engineering Technology	3
ENAG 200 — Introduction to Farm Mechanics	2
AGRO 100 — Crop Production Laboratory	2
AGRO 302 — General Soils	4

ANSC 101 — Principles of Animal Science	3
ANSC 203 — Feeds and Feeding	3
ANSC or AGRO — **	3
AREC 250 — Elements of Agricultural and Resource Economics	3
AREC — **	3
BOTN 221 — Diseases of Plants or ANSC 412 — Introduction to Diseases of Animals	4
ENTM 252 — Agricultural Insect Pests	3
HORT —**	3
AEED 464 — Rural Life in Modern Society, AEED 466 — Rural Poverty in an Affluent Society, or SOCY 305 — Scarcity and Modern Society	3
Community Development Related, Non-agricultural Life Science, Biometrics, Computer, or Accounting	6
Electives (eighteen credit hours 300 or above)	22-29

*Includes eleven required credits listed below

**Student may select any course(s) having required hours in the department indicated

Agricultural and Extension Education (AEED)

College of Agriculture

0222 Symons Hall, 454-3738

Professor and Chair: Miller (Acting)
Professor: Longest
Associate Professors: Cooper, Rivera, Seibel, Smith
Affiliate Associate Professors: Booth, Coffindaffer
Assistant Professors: Gibson, Glee

A degree in agricultural and extension education may lead to career opportunities in educational and developmental programs, public service, business and industry, communications, research, or college teaching.

The program prepares individuals to teach agriculture at the secondary or postsecondary levels. It also prepares individuals to enter community development and other agriculturally related careers which emphasize working with people.

Students preparing to become teachers of agriculture, including horticulture, agribusiness and other agriculturally related subjects, should have had appropriate experience with the kind of agriculture they plan to teach or should arrange to secure that experience during summers while in college.

Students in the agricultural education curriculum are expected to participate in the Collegiate FFA chapter for developing skills necessary for advising FFA groups.

Students may major in preagricultural education and choose a second major until they complete a minimum of 56 credits. Then they may apply for the admission to the teacher education program in agricultural education Contact the Teacher Education Coordinator in AEED for application forms and procedures.

Agricultural and Extension Education Program

	Semester Credit Hours
University Studies Program Requirements	40
AGRO 100 — Crops Laboratory	
AGRO 102 — Crop Production or	
AGRO 406 — Forage Crop Production (3)	2
AGRO 302 — General Soils	4
ANSC 101 — Principles of Animal Science	3
ANSC 203 — Feeds and Feeding	3
AREC 306 — Farm Management or	
AREC 407 — Financial Analysis of Farm Business	3
BIOL 105, 106 — Principles of Biology I, II	4,4
BOTN 221 — Diseases of Plants	4
CHEM 103, 104 — General Chemistry I, Fundamentals of Organic and Biochemistry	4,4
EDHD 300 — Human Development and Learning	6
EDPA 301 — Foundations of Education	3
ENAG 100 — Basic Agricultural Engineering Technology	3
ENAG 200 — Introduction to Farm Mechanics	2
ENAG 305 — Farm Mechanics	2
ENTM 252 — Agricultural Insect Pests	3
HORT 201 — Environmental Factors and Horticultural Crop Production	4
HORT 202 — Management of Horticultural Crop Production	4
MATH 110 — Introduction Mathematics I	3
AEED 302 — Introduction to Agricultural Education	2
EDIT 450 — Training Aids Development	3
AEED 305 — Teaching Young and Adult Farmer Groups	1
AEED 311 — Teaching Secondary Vocational Agriculture	3
AEED 313 — Student Teaching	5
AEED 315 — Student Teaching	4
AEED 398 — Seminar in Agricultural Education	1
AEED 464 — Rural Life in Modern Society	3
AEED 489C — Field Experience: Teaching Agriculture	1
SPCH 107 — Technical Speech Communication	3
Electives	6

Course Code Prefix AEED

Agricultural and Resource Economics (AREC)

College of Agriculture

2211 Symons Hall, 454-4101

Professor and Chair: Hueth
Professors: Bockstael, Brown, Cain, Chambers, Curtis (Emeritus), Foster, Gardner, Just, Lessley†, McConnell, Poffenberger (Emeritus), Stevens (Emeritus), Strand, Tuthill, Wysong
Associate Professors: Hardie, Lopez, Russell
Assistant Professors: Favero, Horowitz, Leathers, Lichtenberg

† Distinguished Scholar-Teacher

The curriculum combines training in business and economic aspects of agricultural production, marketing and natural resource use with the biological and physical sciences In these programs, students are trained for employment in agricultural business firms; for positions in sales or management, for local, state, or federal agencies; for extension work, for foreign service in international agriculture, for research, work in government or private firms; for graduate school; and for farm operation or management.

Courses for the freshman and sophomore years are essentially the same for all students. However, freshmen and sophomores are encouraged to fulfill the math and basic business requirements in their first two years. In the junior year the student selects the option of his or her choice. Courses in this department are designed to provide training in the application of economic principles to the production, processing, distribution, and merchandising of agricultural products and the effective management of our natural and human resources The curriculum includes courses in general agricultural economics, marketing, farm management, prices, resource economics, agricultural policy, and international agricultural economics.

	Semester Credit Hours
University Studies Program	40
Biological Science with lab	4
AREC 250 — Agricultural and Resource Economics	3
ECON 201 — Macroeconomic Principles	3
ECON 203 — Microeconomic Principles	3
ECON 306/406 — Intermediate Microeconomic Theory	3
MATH 115 — Precalculus	3
MATH 111 — Intro. Probability	3
MATH 220 — Elementary Calculus	
Computer Applications*	3
Agribusiness Option	
AREC 306 — Farm Management	3
AREC 407 — Agricultural Finance	3
AREC 414 — Agribusiness Management	3
AREC 427 — Agricultural Marketing	3
BMGT 220 — Accounting I	3
BMGT 221 — Accounting II	3
BMGT 230 — Business Statistics	
BMGT 340 — Business Finance	3
BMGT 350 — Marketing Principles	3
BMGT 364 — Management and Organization Theory	3
BMGT 380 — Business Law	3
Technical Agriculture*	6
Free Electives	28
Agricultural Economics Option	
Chemistry	3
AREC 306 — Farm Management	3
AREC 404 — Agricultural Prices	3
AREC 427 — Agricultural Marketing	3
AREC 433 — Food and Agricultural Policy	3
ECON 305 — Inter Macroeconomic Theory	3
Statistics*	3
Technical Electives*	18
Free Electives	28

Resource Economics Option

Chemistry	3
AREC 240 — Environmental and Human Ecology	3
AREC 404 — Agricultural Prices	3
AREC 432 — Introduction to Natural Resources Policy	3
AREC 453 — Natural Resources and Public Policy	3
ECON 381 — Environmental Economics	3
ECON 305 — Inter. Macroeconomic Theory	3
Statistics*	3
Technical Electives*	15
Free Electives	28

International Agriculture Option

Chemistry	3
AREC 306 — Farm Management	3
AREC 365 — World Food Hunger	3
AREC 404 — Agricultural Prices	3
AREC 433 — Food and Agricultural Policy	3
AREC 445 — Agricultural Development	3
ECON 305 — Inter. Macroeconomic Theory	3
ECON 440 — International Economics	3
Statistics*	3
Technical Electives*	12
Free Electives	28

*Chosen with approval of advisor

Course Code Prefix — AREC

Agronomy (AGRO)

College of Agriculture

1109 H.J. Patterson Hall, 454-3718

Professor and Chairman: Aycock
Professors: Axley (Emeritus), Bandel, Clark (Emeritus), Decker, Fanning, Hoyert (Emeritus), Kuhn (Emeritus), McKee, Miller (Emeritus), Street (Emeritus)
Associate Professors: Angle, Dernoeden, Glenn, Kenworthy, McIntosh, Mulchi, Ritter, Sammons†, Turner, Vough, Weil, Weismiller
Assistant Professors: Bruns, Hill, James, Rabenhorst, Slaughter, Thomison, Welterlen
Adjunct Professor: Lee, Meisinger, Smail

† Distinguished Scholar-Teacher

The Agronomy Major

Agronomy instruction combines the principles of basic sciences with a thorough understanding of plants and soils. This amalgamation of basic and applied sciences provides the opportunity for careers involved in conserving soil and water resources, improving environmental quality, increasing crop production to meet the global need for food, and beautifying and conserving the urban landscape using turfgrass.

The agronomy curricula are flexible and allow the student either to concentrate on basic science courses that are needed for graduate work or to select courses that prepare for employment at the bachelor's degree level. Graduates with a bachelor's degree are employed by private corporations as golf course managers, seed, fertilizer, chemical, and farm equipment company representatives, or by county, state, or federal government as agronomists or extension agents. Students completing graduate programs are prepared for research, teaching, and management positions with industry, international agencies, or federal and state government.

Additional information on opportunities in agronomy and available scholarships may be obtained by writing to the Department of Agronomy

Major Requirements

Agronomy Curricula
University Studies Program Requirements (39 semester hours): math and science requirements (9 hours) are satisfied by departmental requirements

Department Requirements (31 semester hours)

	Semester Credit Hours
AGRO 100 — Crops Laboratory	2
AGRO 102 — Crop Production	2
AGRO 302 — General Soils	4
AGRO 398 — Senior Seminar	1
BIOL 105 — Principles of Biology I	4
CHEM 103 — General Chemistry I	4
CHEM 104 — Fundamentals of Organic and Biochemistry*	4
MATH 110 — Introduction to Mathematics	3
or	
MATH 115 — Pre-calculus (consult advisor)	3
PHYS 121 — Fundamentals of Physics I	4
SPCH 100 — Basic Principles of Speech Communication	
or	
SPCH 107 — Technical Speech Communication	3

*Students intending to take additional chemistry should substitute CHEM 113, followed by CHEM 233 and CHEM 243

Crop Science Curriculum

University and Department requirements	61
AGRO — Advanced Crops Courses (Consult Advisor)	8
AGRO — Advanced Soils Courses (Consult Advisor)	6
BOTN 441 — Plant Physiology	4
One of the following	3-4
BOTN 212 — Plant Taxonomy (4)	
BOTN 414 — Plant Genetics (3)	
BOTN 416 — Principles of Plant Anatomy (4)	
Electives	37-38

Soil Science Curriculum

University and Department requirements	61
AGRO — Advanced Soils Courses (Consult Advisor)	3
AGRO — Advanced Crops Courses (Consult Advisor)	6
AGRO 414 — Soil Classification and Geography	4
AGRO 417 — Soil Physics	3
AGRO 421 — Soil Chemistry	3
GEOL 100 — Introduction to Physical Geology	3
MICB 200 — General Microbiology	4
Electives	33

Turf and Urban Agronomy Curriculum

University and Department Requirements	61
AGRO 411 — Soil Fertility Principles	3
AGRO 405 — Turf Management	3
AGRO 453 — Weed Control	3
BOTN 441 — Plant Physiology	4
BOTN 425 — Diseases of Ornamentals and Turf*	2
ENTM 453 — Insect Pests of Ornamentals and Turf*	3
HORT 160 — Introduction to the Art of Landscaping*	3
AGRO 415 — Soil Survey and Land Use	3
Electives (HORT 453, HORT 454, and RECR 495 suggested)	35

*BOTN 221, ENTM 204, and BOTN 212 serve as prerequisites

Conservation of Soil, Water and Environment Curriculum

University and Department Requirements	61
AGRO 417 — Soil Physics or	
AGRO 421 — Soil Chemistry	3
AGRO 413 — Soil and Water Conservation	3
AGRO 411 — Soil Fertility Principles	3
AGRO 414 — Soil Classification and Geography	4
AGRO 415 — Soil Survey and Land Use	3
AGRO 423 — Soil-Water Pollution	3
AGRO — Advanced Crops Courses (Consult Advisor)	5-6
Select one of the following courses:	3
BOTN 211 — Principles of Conservation (3)	
GEOG 445 — Climatology (3)	
AREC 432 — Introduction to Natural Resources Policy (3)	
Electives	31-32

Journalism-Science Communication Option

A student following this option in the crop science or soil science curriculum must elect journalism and basic science and math courses in addition to the required curriculum courses. Many combinations will be acceptable. The advisor can aid in helping the student plan an appropriate program.

Course Code Prefix — AGRO

American Studies (AMST)

College of Arts and Humanities

2140 Taliaferro, 454-4661

Associate Professor and Chair: Kelly
Associate Professor and Undergraduate Coordinator: Diner
Associate Professors: Caughey, Lounsbury, Mintz
Assistant Professor: Sies

The department offers an interdisciplinary focus on American culture and society in both historical and contemporary sources. Undergraduate majors, with the help of faculty advisors, design a program that includes courses offered by the American Studies faculty, and sequences of courses in the disciplines usually associated with American studies (i.e.,

history, literature, sociology, anthropology, political science, and others), or pertinent courses grouped thematically (e.g., Afro-American studies, women's studies, ethnic studies, comparative cultures, popular culture, urban and environmental studies, and so forth).

Requirements for Major

The major requires forty-five hours, at least twenty-four of which must be at the 300-400 level. Of those forty-five hours, twenty-one must be in AMST courses, with the remaining twenty-four in two twelve-hour core areas outside the regular AMST offerings.

No grade lower than a C may be applied toward the major. The department recommends that students fulfill the college's history requirement with an American history course, particularly if American history is not one of the core areas in the student's program. Lists of courses applicable to the major for each of the core areas are available from the department office. No courses other than those on the lists will be accepted for credit toward the major unless an advisor's permission has been granted in writing and placed in the student's file.

Distribution of the 45 Hours:

AMST Courses (21 hours required)

1. AMST 201 — Introduction to American Studies I (3): required of majors.
2. AMST 203 — Popular Culture in America; AMST 205 — Material Aspects of American Life; AMST 207 — Contemporary American Cultures: three (3) hours minimum from this group, six (6) hours maximum may be applied toward the 21-hour AMST requirement.
3. AMST 330 — Critics of American Culture (3): required of majors.
4. AMST 418 — Cultural Themes in America; AMST 426 — Culture and the Arts in America; AMST 428 — American Cultural Eras; AMST 429 — Perspectives on Popular Culture; AMST 432 — Literature and American Society. *majors will take six to nine hours (depending upon number of hours taken at 200 level) of these courses. No more than six hours of a repeatable number may be applied to the major.* AMST 298, 498 (special topics); AMST 398 (independent study); or AMST 386-387 (internship) may sometimes be substituted for major requirements with advisor approval.
5. AMST 450 — Seminar in American Studies (3): required of majors.

Core Areas Outside AMST (24 hours required):

Student majors will choose two outside core areas of twelve hours each. One of the core areas may be interdisciplinary in nature (see interdisciplinary core suggestions). All interdisciplinary cores must be approved by an advisor in writing; they may not be organized merely by grouping courses from the approved-course list.

Departmental Cores

Courses chosen from the approved list or accepted by an advisor in American History, American Literature, Sociology, Anthropology, Government and Politics, Psychology, Art History, Architecture, Geography, Radio-TV-Film, Economics, Education, Journalism, Philosophy.

Interdisciplinary Cores

Afro-American Studies, Women's Studies, Urban and Environmental Studies, Popular Culture, Personality and Culture, Creative and Performing Arts, Comparative Cultures, Ethnic Studies, Business and Industry, Material Culture, Folklore, Pre-Law.

Individual cores may also be designed with advisor assistance and approval.

Course Code Prefix — AMST

Animal Sciences (ANSC)

College of Agriculture

2115 Animal Sciences Building, 454-3926

Department of Animal Sciences

Professor and Chair: Westhoff
Professors: Flyger, Foster (Emeritus), King (Emeritus), Leffel (Emeritus), Mather, Mattick (Emeritus), Vandersall, Vijay, Williams, Young
Associate Professors: DeBarthe, Douglass, Erdman, Goodwin, Hartsock, Majeskie, Peters, Russek-Cohen, Stricklin, Varner
Assistant Professors: Alston-Mills, Barao, Cassel, Marshall
Principal Specialist: Morris (Emeritus)
Associate Specialist: Curry

Department of Poultry Science

Associate Professor and Acting Chairman: Doerr
Professors: Health, Kuenzel, Shorb (Emerita), Soares, Thomas
Associate Professors: Murphy, Ottinger, Wabeck
Adjunct Professor: Kotula
Assistant Professor: Mench
Adjunct Associate Professors: Failla, Rattner

The curriculum in animal sciences offers a broad background in general education, basic sciences, and agricultural sciences, and the opportunity for students to emphasize that phase of animal agriculture in which they are specifically interested. Each student will be assigned to an advisor according to the program he or she plans to pursue.

Curriculum requirements in animal sciences can be completed through the Departments of Animal Sciences or Poultry Science. Programs of elective courses can be developed that provide major emphasis on beef cattle, sheep, swine or horses, dairy or poultry. Each student is expected to develop a program of electives in consultation with an advisor by the beginning of the junior year.

Objectives. The following specific objectives have been established for the program in animal sciences:

1. To acquaint students with the role of animal agriculture in our cultural heritage.
2. To prepare students for careers in the field of animal agriculture. These include positions of management and technology associated with animal, dairy, or poultry production enterprises; positions with marketing and processing organizations; and positions in other allied fields, such as feed, agricultural chemicals, and equipment firms.
3. To prepare students for entrance to veterinary schools.
4. To prepare students for graduate study and subsequent careers in teaching, research, and extension, both public and private.
5. To provide essential courses for the support of other academic programs of the University.

Required of All Students

	Semester Credit Hours
University Studies Program Requirements*	40
ANSC 101 — Principles of Animal Science	3
FDSC 111 — Contemporary Food Industry and Consumerism	3
ANSC 201 — Basic Principles of Animal Genetics	3
ANSC 221 — Anatomy of Domestic Animals	4
ANSC 212 — Applied Animal Physiology	3
ANSC 214 — Applied Animal Physiology Laboratory	1
ANSC 401 — Fundamentals of Nutrition	3
ANSC 412 — Introduction to Diseases of Animals	3
CHEM 103 — General Chemistry I	4
CHEM 104 — Fundamentals of Organic and Biochemistry	4
MICB 200 — General Microbiology	4
BIOL 105 — Principlesof Biology I	4
SPCH 107 — Public Speaking	3
Two of the Following:	
ANSC 221 — Fundamentals of Animal Production	3
ANSC 242 — Dairy Production	3
ANSC 262 — Commercial Poultry Management	3
One of the Following:	
ENAG 100 — Basic Agricultural Engineering Technology	3
CHEM 233 — Organic Chemistry I***	4
CHEM 243 — Organic Chemistry II***	4
MATH 111 — Introduction to Mathematics II	3
PHYS 121 — Fundamentals of Physics I	4
**Electives	39-40

*includes eleven required credits listed below.

**electives must include at least twelve credits in upper-level courses in animal science.

***CHEM 233 is a prerequisite.

Course Code Prefix — ANSC

Anthropology (ANTH)

College of Behavioral and Social Sciences

1107 Woods Hall, 454-4154

Associate Professor and Chair: Whitehead
Professors: Agar, Gonzalez, A. Williams
Associate Professors: Chambers, Leone
Assistant Professors: Stuart, Wali
Lecturers: Cassidy (p.t.), Chase (p.t.), Eidson (p.t.), McDaniel* (Instructional Computing), Shackel (p.t.), Vreeland (p.t.)

* Joint appointment with unit indicated

Anthropology has been defined as "the study of humanity" because it is the discipline that tries to understand humans as a whole — as an animal, as a social being, as a literate being — from the very beginning of time and all over the world. Anthropologists try to explain differences among humans — differences in their physical characteristics as well as their customs, behavior, and attitudes. Since children learn their culture from the older generation, who in turn learned it from the proceeding generation, culture is a product of the past. Anthropologists study the way

human culture has grown and changed through time, and the way the species has spread over the earth. This is not the history of kings and great women or men or of wars and treaties, it is the history, including the present, and science of human knowledge and behavior.

It is becoming increasingly clear that anthropology has been a definite asset in finding jobs in a variety of fields ranging from business to the fine arts. Whether one goes on to a Master's or a Ph.D., striving to advance the frontiers of knowledge concerning our species and the cultural process, or combines the anthropology B.A. with other specific knowledge and goes out as a city planner, development consultant, or program evaluator, is up to the individual. Anthropology at UMCP offers a solid and rigorous background for a variety of career options.

The Anthropology Department offers beginning and advanced coursework in the four principal subdivisions of the discipline: physical anthropology, linguistics, archaeology, and cultural anthropology. Within each area, the department offers some degree of specialization and provides a variety of opportunities within the curriculum. Laboratory courses are offered in physical anthropology and archaeology; field schools are offered in archaeology and ethnography. Instruction is available in both Old World and New World archaeology and ethnology, and lab courses include human evolution, human population biology, forensic anthropology, osteology, and archaeological analysis. The interrelationship of all branches of anthropology is emphasized. Courses in these subdivisions may be used to fulfill the minor or "supporting courses" requirement in some programs leading to the Bachelor of Arts degree.

The Anthropology Department has a total of four laboratories located in Woods Hall, which are divided into teaching labs and research labs. At present, there are two physical anthropology labs: one osteological research lab, and one "wet" lab for teaching and research in serology, histology, and anatomy. These laboratories contain radiographic, histolic, and electrophonetic equipment, and the osteological lab is centered around an extensive research collection. The department's two archaeology labs, containing materials collected from field schools of the past several years, serve as both teaching and research labs.

Anthropology Major Requirements. A student who declares a major in anthropology will be awarded a Bachelor of Arts degree upon fulfillment of the requirements of the degree program. The student must complete at least thirty hours of courses labeled ANTH with a grade of C or better in each course. The courses are distributed as follows:

a. Eighteen hours of required courses that must include ANTH 101, 102, 397, 401, 441 or 451 and 371 or 461 or 361.
b. Twelve hours of elective courses in anthropology of which nine hours must be at the 300 level or above.
c. Eighteen hours of supporting courses (courses outside of anthropology offerings in fields that are complementary to the major's specific anthropological interest). Supporting courses are to be chosen by the student and approved by a faculty advisor.

In addition to the above requirements anthropology majors must meet those of the College of Behavioral and Social Sciences specifying general courses, grade point average, course load, and the forty credit hours of University Studies program approved courses required of every degree-seeking student of the University.

Advising. The Anthropology Department allows the student to select his or her faculty advisor to fit particular interests and needs. All anthropology faculty members are advisors (and should be contacted individually) who help plan each student's program. All majors are expected to seek out a faculty advisor and consult with him/her on a regular basis. For additional information, students should contact the Undergraduate Studies Coordinator, Dr. Richard Dent, Room 1106, Woods Hall; telephone 454-5354.

The Honors Program. The Anthropology Department also offers an Honors Program that provides the student an opportunity to pursue in-depth study of his or her interests. Acceptance is contingent upon a 3.5 GPA in anthropology courses and a 3.0 overall average. Members of this program are encouraged to take as many departmental honors courses as possible. The citation is awarded upon completion and review of a thesis to be done within the field of anthropology. Details and applications are available in the Anthropology Office, or contact your advisor for further information.

ANTH 101 (or equivalent), or permission of instructor is prerequisite for all upper division archaeology or physical anthropology courses. ANTH 102 (or equivalent), or permission of instructor is prerequisite for all upper division cultural anthropology and linguistics courses.

Anthropology Student Association. An anthropology student association meets regularly to plan student events and to help coordinate various student and faculty activities. Meeting times are posted outside Room 0133, Woods Hall.

Course Code Prefix — ANTH

Applied Mathematics Program (MAPL)

College of Computer, Mathematical, and Physical Sciences

1104 Mathematics, 454-5331

Director: Cooper
Faculty: Over 100 members from thirteen units of the campus

The Applied Mathematics Program is a graduate program in which the students combine studies in mathematics and application areas. The program is administered by the Applied Mathematics Program and all MAPL courses carry credit in mathematics. An undergraduate program stressing applied mathematics is available to majors in mathematics and such courses occur under the MATH and STAT label as well as the MAPL label. See Mathematics listing for details.

Course Code Prefix — MAPL

Architecture (ARCH)

For information consult School of Architecture entry.

Art (ARTT)

College of Arts and Humanities

1211 Art/Sociology Building, 454-0344

Chair: Morrison
Professors: DeMonte, Driskell, Lapinski, Truitt
Associate Professors: Craig, Forbes, Gelman, Kehoe, Klank, Krushenick, Niese, Pogue, Richardson
Assistant Professors: Blotner, Gossage, Ruppert, Sanborn

The Art Major:

An Art Department is a place where concepts become art objects. To accomplish this transformation, the artist must be capable of articulating and refining the concept, and then be able to apply acquired knowledge and skills to the materials that comprise the resulting object.

This inclination of human beings to make and embellish objects that ultimately reflect something about intangible concepts is thousands of years old. In the Twentieth Century, Art Department faculties and students embody this fundamental human inclination and attempt to understand, convey, and celebrate it.

Requirements for the Art Major:

The student may choose one of two Major Program Options: Program "A" or Program "B".

Program "A" Requirements (39 Major credits † 12 Supporting Area credits)
- ARTH 100 Introduction to Art (3)
- ARTT 100 Elements of Design (3)
- ARTT 110 Elements of Drawing (3)
- ARTT 208 Intermediate Design or alternative course choice (3)
- ARTT 210 Intermediate Drawing (3)
- ARTT 200 (formerly 260) History of Art (Prehistoric to Renaissance) (3)
- ARTT 201 (formerly 261) History of Art (Renaissance to present) (3)
- ARTT 320 Elements of Painting (3)
- ARTT 33x Elements of Sculpture (330, 334, or 335) (3)
- ARTT 34x Elements of Printmaking (340, 341, or 344) (3)
- ARTT 418 Advanced Drawing (3)
- ARTT xxx Choice, 3/400 level (3)
- ARTT xxx Choice, any level (3)

Supporting Area
- Twelve coherently related non-art courses approved by an advisor. Six of these credits must be taken in one department and must be at the 3-400 level. (12)

Program "B" requirements (30 Major credits † 12 Supporting Area)
- ARTH 100 Introduction to Art (3)
- ARTT 100 Elements of Design (3)
- ARTT 110 Elements of Drawing (3)
- ARTT 208 Intermediate Design or alternative course choice (3)
- ARTT 210 Intermediate Drawing (3)
- ARTT 320 Elements of Painting (3)

ARTT 33x Elements of Sculpture (330, 334, or 335)
ARTT 34x Elements of Printmaking (340, 341, or 344) (3)
ARTT 418 Advanced Drawing (3)
ARTT xxx Choice, 3/400 level (3)

Supporting Area
ARTH 200 (formerly 260) History of Art (Prehistoric to Renaissance) (3)
ARTH 201 (formerly 261) History of Art (Renaissance to present) (3)
ARTH xxx Choice, 3/400 level (3)
ARTH xxx Choice, 3/400 level (3)

No course with a grade less than C may be used to satisfy Major or Supporting Area requirements

Advising:
Advisor's signature is not required; however we strongly recommend that the student see an advisor each semester. Additionally, we recommend that the student see an Arts & Humanities advisor once each year. Professor Jim Forbes is the Primary Advisor and can be reached at x0344. The Advising Office is in room M1 320 in the Art/Socy Building.

Fieldwork and Internship Opportunities:
Students in past internships have worked in a variety of settings. These have included assisting professionals complete public commissions, commercial or cooperative gallery and exhibition duties, and working in professional artists' workshops in the Baltimore and Washington metropolitan area. Professors Patrick Craig and Patrice Kehoe are coordinators of the Fieldwork and Internship program (ARTT 386 & 387). They may be contacted through the main office of the Art Department.

Financial Assistance:
The Art Department administers ten Creative and Performing Arts Scholarships that are available to entering freshmen and transfer students. This award is awarded on a one-year basis but is potentially renewed for a maximum of four years to any one individual. Annual Faculty reviews are required for students who wish to be considered for renewal. Additional information is available in the main office of the Art Department.

Honors and Awards:
Our Honors Program is currently being developed. Students interested in further information are encouraged to contact Professor Richard Klank through the main office of the department.

Graduating Art Majors have an exhibition in December and in May of each academic year. The James P. Wharton Prize is awarded to the outstanding graduating student in these exhibitions. Professor Wharton is a former chairman of the department.

The exhibition is presented in The West Gallery. This exhibition space is devoted primarily to exhibitions of the student's art works and is administered by undergraduate art majors (Room 1309).

Lecture Program:
The Art Department has a lecture program in which artists and critics are brought to the campus to explore ideas in contemporary art. A strong component of this program is devoted to the art ideas of women and minorities.

Course Code Prefix: ARTT

Art History (ARTH)

College of Arts and Humanities

1211 Art/Sociology Building, 454-3431

Professor and Chair: Farquhar
Professors Emeritus: deLeiris, Levitine
Professors: Burnham, Denny, Eyo, Miller, Rearick, Wheelock
Associate Professors: Hargrove, Pressly, Spiro, Withers
Assistant Professors: Caswell, Kim, Peters-Campbell, Sandler, Venit
Slide Curator: Bonnell
Gallery Director: Owens

The Art History Major:
A major in the department of Art History leads to a Bachelor of Arts degree through the study and scholarly interpretation of existing works of art, from the prehistoric era to the present. The goal of the Art History Department is to develop the student's aesthetic sensitivity and understanding of art as well as to impart a knowledge of the works, the artists, and their place in history. In addition to courses in European art history and archaeology, the curriculum includes courses in African, American, Black American, Chinese, Japanese, and Pre-Columbian art history and archaeology, all taught by specialists in the fields. The department's 65,000 volume art library and the University's art gallery are located in the art building.

An Art History major is often combined for a double major with other academic disciplines, such as Anthropology, American studies, Classics, Economics, History, languages and literature, or with professional disciplines, such as Architecture, Design, and Journalism. The Art History faculty encourages the development of language skills and writing. The program provides a good foundation for graduate study, for work in museums and galleries, or for law, writing and publishing, teaching, and any profession for which clear thinking and writing are required.

The Department of Art History offers two majors:

Art History Major A with a non-art supporting area:

Required courses:
ARTH 100, Introduction to Art (3)
ARTH 200 (formerly 260) Survey of Art History, part I (3)
ARTH 201 (formerly 261) Survey of Art History, part II (3)
Five 300-400 level ARTH courses, excluding the department's Masterpiece Courses (15)
ARTT 100, Elements of Design (3)
ARTT 110, Elements of Drawing (3)
One more course in ARTT, any level (3)

Supporting Area:

Twelve coherently related non-art credits approved by an advisor. Six of these credits must be taken in one department and must be at junior-senior level (12)

Art History Major B, with the supporting area in studio art:

Required courses:
ARTH 100, Introduction to Art (3)
ARTH 260 (or 200) Survey of Art History, part I (3)
ARTH 261 (or 201) Survey of Art History, part II (3)
Five 300-400 level ARTH courses (15)
Three more ARTH courses at any level (9)
ARTT 100, Elements of Design (3)
ARTT 110, Elements of Drawing (3)
Two upper level ARTT courses (6)

Total credit hours needed for Art History Major A or B, combined major and supporting area, are 45.

No course with a grade less than C may be used to satisfy major or supporting area requirements.

Awards
The Department of Art History offers two undergraduate awards each year: the J.K. Reed Fellowship Award to an upper-level major who will be studying at the university for at least one more semester and the Frank DiFederico Book Award to a senior nearing graduation.

Course Code Prefix: ARTH

Astronomy Program (ASTR)

College of Computer, Mathematical and Physical Sciences

2105 Space Sciences Bldg., 454-3001

Director: Bell
Associate Director: Trasco
Professors: A'Hearn, Harrington, Kundu, Papdopoulos, Rose, Wentzel, Wilson
Associate Professors: Blitz, Eichler, Heckman, Matthews, Zipoy
Assistant Professor: Mundy
Adjunct/Part-Time Professors: Hauser, Holt, Trimble, Westerhout
Professors Emeritus: Erickson, Kerr

The Astronomy Program offers courses leading to a Bachelor of Science in Astronomy as well as a series of courses of general interest to non-majors. Astronomy majors are given a strong undergraduate preparation in astronomy, mathematics and physics. The degree program is designed to prepare students for positions in government and industry laboratories or for graduate work in astronomy or related fields. A degree in astronomy has also proven valuable as preparation for non-astronomical careers such as in law or business.

Major Requirements
Astronomy majors are required to take two basic courses in astronomy and astrophysics — ASTR 200 and ASTR 350. They are also required to take ASTR 210 (Practical Astronomy) plus three 400-level astronomy courses, one of which must be ASTR 410.

Students majoring in astronomy are also required to obtain a good background in physics and in mathematics. The normal required sequence is PHYS 171, 272, 273 and the associate labs PHYS 275, 276 and 375. With

the permission of the advisor, PHYS 161, 262, 263 plus 375 can be substituted for this sequence. Astronomy majors are also required to take a series of supporting courses in mathematics. These are MATH 140, 141, 240 and 241. In addition, MATH 246 is strongly recommended.

The Program requires that a grade of C or better be obtained in all courses. Any student who wishes to be recommended for graduate work in astronomy must maintain a B average. He or she should also consider including several additional advanced courses beyond the minimum required, to be selected from astronomy, physics and mathematics.

Detailed information on typical programs an alternatives to the standard program can be found in the pamphlet entitled "Department Requirements for a Bachelor of Science Degree in Astronomy" which is available from the Astronomy Program office.

Courses for Non-Science Majors. There are a variety of astronomy courses offered for those who are interested in learning about the subject but do not wish to major in it. These courses do not require any background in mathematics or physics and are geared especially to the non-science major. ASTR 100 is a general survey course that briefly covers all of the major topics in astronomy. ASTR 110 is the lab that can be taken with or after ASTR 100. Several 300-level courses are offered primarily for non-science students who want to learn about a particular field in depth, such as the Solar System, Galaxies and the Universe, and Life in the Universe. Non-science majors should not normally take ASTR 200 or ASTR 350.

Honors in Astronomy. The Honors Program offers students of exceptional ability and interest in astronomy an educational program with a number of special opportunities for learning. There are many opportunities for part-time research participation which may develop into full-time summer projects. An honors seminar is offered for advanced students, credit may be given for independent work or study, and certain graduate courses are open for credit toward the bachelor's degree.

Students for the Honors Program are accepted by the Department's Honors Committee on the basis of recommendations from their advisors and other faculty members. Most honors candidates submit a written report on their research project, which together with an oral comprehensive examination in the senior year, concludes the program which may lead to graduation "with honors (or high honors) in astronomy."

Further information about advising and the honors program can be obtained by calling the Astronomy Program office at (301) 454-3001.

Course Code Prefix — ASTR

Biological Sciences Program

College of Life Sciences

H.J. Patterson Hall, 454-3812

Coordinator: Berg

The General Biological Sciences Major: This program is designed for the student who is interested in a broader education in the biological sciences than is available in the programs for majors in the various departments in the College of Life Sciences. It is appropriate for the entering student who wishes to explore the various areas of biology before specializing in the major offered by a single department, or for the student desiring to concentrate on a broad area of biology.

By the beginning of the junior year students select one of several areas to emphasize, including marine biology, ecology, physiology, genetics, animal sciences, botany, chemistry, entomology, microbiology, or zoology. Information pertaining to a specific emphasis or to the generalist program is available at the College Office. Alternatively, the student may elect to remain a generalist throughout the program. Individual programs to meet specific career goals may be developed between the student and the Coordinator. In each case, advising will be carried out in the department in which most of the work is to be taken.

Preparation for graduate study in a specialized area of biology is readily accomplished under this program by the judicious selection of junior-senior level courses in the proposed area of graduate concentration. Students in the program who are attempting to meet the requirements of a pre-professional program should also seek advice from advisors of those respective programs. Students in the program who wish to prepare for secondary school science teaching should contact the staff of the Science Teaching Center of the College of Education for information concerning the requirements for certification.

Requirements for Major: All students must complete the core requirements for the College of Life Sciences. In addition, the following courses are required:

	Semester Credit Hours
University Studies Program Requirements	30
College of Life Sciences Core Requirements	38-40
1 of the following three courses	4
BOTN 202-Plant Kingdom	
ENTM 205-Principles of Entomology	
ZOOL 210-Animal Diversity	
MICB 200-General Microbiology	4
1 of the following 5 courses	3-4
BOTN 414-Plant Genetics	
ZOOL 213-Genetics	
ANSC 201-Basic Principles of Animal Genetics	
HORT 274-Genetics of Cultivated Plants	
MICB 380-Bacterial Genetics	
Advanced Program	22
Electives	16-19
	120

A grade of "C" or better is required for BIOL 105, 106, the Diversity course, MICB 200 and genetics. A "C" average is required for the other College of Life Sciences core courses.

Advanced Program: Students must complete an approved curriculum that includes one course in statistics (BIOM 301, BIOM 401, STAT 250, STAT 400, STAT 464, or PSYC 200) and 19 credits of biological sciences selected from the courses below. A minimum of ten credits must be taken in the area of emphasis. At least two courses must involve laboratory or fieldwork at the 300-400 level. At least 15 of the 19 credits of biological sciences must be completed in courses numbered 300 or above. Two participating departments must be represented by at least one course in the 15 credits of 300-400 work. No 386-387 credits (experiential learning) will be accepted. A grade of "C" or better is required in all courses within the Advanced Program. Courses currently approved for the advanced program include:

AGRI 411, 489.
AGRO 105, 403, 422, 423
ANSC 101, 211, 212, 214, 252, 305, 327, 350, 370, 398, 399, 401, 406, 412, 413, 415, 416, 427, 443, 446, 447, 452, 462, 463, 466, 480.
BIOL 398, 399
BOTN all courses except BOTN 100, 101, 103, 200, 202, 211 and 414
BCHM 261, 461, 462, 463, 464
CHEM 287, 487.
ENTM all courses except ENTM 100, 111, 205, 252, and 303
GEOL 102, 331, 431, 432, 434, 452
HORT 171 and 271.
MICB all courses except MICB 100, 200, 322.
NUSC 402, 403, 450.
NUTR 440, 450. Credit will be given for only one of these-NUSC 450 or NUTR 450
PHED 300.
PSYC 400, 402, 403, 410, 412, and 479
ZOOL all courses except ZOOL 101, 146, 181, 207, 210, 213, 301, 346, and 381.
ZOOL 328Z requires prior approval of Coordinating Advisor

Research experience in the various areas of biology is possible under this plan by special arrangement with faculty research advisors and **prior** approval of Coordinator. Not more than 3 hours of special problems or research can be taken as part of the advanced program requirement. All advanced program curricula are subject to the approval of the General Biological Sciences Program Committee.

In compliance with the University Studies Program, the following courses cannot be used by G.B.S. majors to fulfill USP requirements: EDMS 451, ZOOL 346.

Advising: Academic advising is mandatory. Contact one of the following advisors.

Berg, Coordinator (H.J. Patterson room 1225, 454-3812)
Barnett (HJP room 3214, 454-3812)
Koines (HJP room 1227, 454-3812)
Van Valkenburg (HJP room 3226, 454-3812)
Armstrong-Entomology Emphasis (Symons room 2309, 454-7122)
Bottino-Genetics Emphasis (HJP room 3223, 454-3821)
Cook-Microbiology Emphasis (Microbiology room 3115, 454-5381)
Klavon-Chemistry Emphasis (Symons room 1220, 454-5257)
Linder-Zoology Emphasis (Zoology-Psychology room 3202, 454-6249)
Motta-Botany Emphasis (HJP room 4108, 454-3994)

Honors: The General Biological Sciences Honors Program is a special program for exceptionally talented and promising students. It emphasizes the scholarly approach to independent study. Information about this honors program may be obtained from the Coordinating Advisor.

Student Honor Society: Phi Sigma. Contact Linda Dalo, X5131, for information on membership and eligibility.

Course Code Prefix: BIOL

Botany (BOTN)

College of Life Sciences

H J Patterson Hall, 454-3812

Professor and Acting Chair: Teramura
Distinguished Professor: Diener
Professors: Bean, Corbett, Gant, Kantzes, Krusberg, Kung, Lockard, Patterson, Reveal, Sisler
Associate Professors: Barnett, Bottino, Cooke, Forseth, Grybauskas, Motta, Racusen, Steiner, Sze, Wolniak
Assistant Professors: Hutcheson, Van Valkenburg, Watson
Lecturer: Berg
Instructors: Higgins, Koines
Emeriti: Brown, Sorokin

The Botany Major: This major is designed with a diverse range of career possibilities for students in botany or plant biology, and gives students a broad background in supporting areas of biological sciences, chemistry, math, and physics. In addition to the botany courses required of all majors, this major allows students to take a number of botany or related electives to develop the student's area of interest within botany. The department offers instruction in the fields of physiology, pathology, ecology, taxonomy, anatomy-morphology, genetics, mycology, nematology, virology, phycology, and general botany.

Requirements for Major: *Requirements of this major are under review and may be changed prior to the 1989-90 academic year.* All students must complete the core requirements for the College of Life Sciences. In addition, the following courses are required

	Semester Credit Hours
University Studies Program Requirements	30
College of Life Sciences Core Requirements	38-40
Botany 202-Plant Kingdom	4
Botany 212-Plant Taxonomy	4
Botany 221-Diseases of Plants	4
Botany 398-Seminar	1
Botany 414-Plant Genetics	3
Botany 416-Plant Structure	4
Botany 441-Plant Physiology	4
Botany 462-Plant Ecology	2
Botany 464-Plant Ecology Laboratory	2
Botany Electives or Related Electives	8-10
Microbiology 200-General Microbiology	4
Electives	10
	120

All required courses, including botany-related electives, require a grade of C or better. Botany-related electives may include no more than one lower-level course and must be approved by the advisor. In some areas of botany, an introductory course in geology or soils is highly recommended.

Advising: Academic advising is mandatory. Contact the Botany Coordinating Advisor, Dr. Neal Barnett (room 3214, HJP), or Dr. Linda Berg (room 1225, HJP). Phone 454-3812 to schedule appointments.

Honors: The Botany Department offers a special program for exceptionally talented and promising students through the Honors Program, which emphasizes the scholarly approach to the independent study. Information concerning this program may be obtained from the academic advisors.

Course Code Prefix: BOTN.

Business and Management, General

For information, consult College of Business and Management entry.

Chemical and Nuclear Engineering (ENCH, ENNU)

College of Engineering

2113 Chemical and Nuclear Engineering Bldg., 454-2431

Chair: Roush

The Chemical and Nuclear Engineering Department offers programs in chemical, nuclear and materials engineering. In addition, study programs in the specialty areas of applied polymer science, biochemical engineering, and process simulation and control are available. The latter programs are interdisciplinary with other departments at the University. The departmental programs prepare an undergraduate for graduate study or immediate industrial employment following the baccalaureate degree.

Chemical Engineering Program (ENCH)

Director: Smith
Professors: Asbjorsen, Cadman, Gentry, Hsu, McAvoy, Regan, Sengers*, Silverman, Smith, Weigand
Associate Professors: Calabrese, Choi, Gasner
Assistant Professors: Bentley, Coppella, Davison, Halemane, Lee, Mavrovouniotis, Payne, Rao, Wang, Zafiriou
Adjunct Professor: Ulbrecht
Emeritus: Beckmann

*member of Institute for Physical Sciences and Technology

The Chemical Engineering Major: The Chemical Engineering Program emphasizes the application of basic engineering and economic principles — and basic sciences of mathematics, physics and chemistry — to process industries concerned with the chemical transformation of matter. The chemical engineer is primarily concerned with research and process development leading to new chemical process ventures or a better understanding of existing ones; with the efficient operation of the complete chemical plant or its component units; with the technical services engineering required for improving and understanding plant operation and the products produced; with the sales and economic distribution of the plant products; and with the general management and executive direction of process industry plants and industrial complexes. The process may be a chemical, petrochemical, biochemical or petroleum operation.

Because of this wide range of ultimate applications, the chemical engineer finds interesting and diverse career opportunities in such varied fields as chemical (inorganic and organic), food processing and manufacture, metallurgical, nuclear and energy conversion, petroleum (refining, production, or petrochemical), and pharmaceutical industries. Additional opportunities are presented by the research and development activities of many public and private research institutes and allied agencies.

Requirements for Major: The curriculum is composed of: (1) the required USP (general education) requirements of College Park; (2) a core of mathematics, physics, chemistry, and engineering sciences required of all engineering students; (3) the required core of 31 credits of ENCH courses which includes ENCH 215, 280, 300, 333, 425, 427, 437, 440, 444, and 446; (4) twelve credits of ENCH electives. A sample program follows:

Freshman Year. The freshman year is the same for all Engineering departments. Please consult The College of Engineering entry.

	Semester I	II
Sophomore Year		
Math 241 — Calculus III	4	
Math 246 — Differential Equations for Scientists & Engineers		3
PHYS 262, 263 — General Physics	4	4
ENES 230 — Intro. to Materials and Their Applications		3
CHEM 233 — Organic Chemistry I	4	
CHEM 243 — Organic Chemistry II		4
ENCH 215 — Chem. Engr. Analysis	3	
ENCH 280 — Transport Processes I: Fluid Mechanics		2
University Studies Program Requirements	3	
Total	18	16
Junior Year		
ENCH 300 — Chemical Process Thermodynamics	3	
ENCH 440 — Chemical Engineering Kinetics		3
ENCH 442 — Chemical Engr. Systems Analysis		3
CHEM 481, 482 — Physical Chemistry I, II	3	3
CHEM 483 — Physical Chemistry Laboratory I	2	
ENCH 425, 427 — Transport Processes II: Heat Transfer; Transport Processes III: Mass Transfer	3	3
ENEE Elective***	3	
University Studies Program Requirements	3	6
Total	17	18
Senior Year		
ENCH 437 — Chemical Engineering Lab	3	
ENCH 444 — Process Engr. Economics and Design I	3	
ENCH 446 — Process Engr. Economics and Design II		3
ENCH 333 — Seminar		1
Technical Electives	6	6
University Studies Program Requirements	3	6
Total	15	16

Minimum Degree Credits — 120 credits and fulfillment of all department, college, and University requirements.

*Qualified students may elect to take CHEM 105 and 115 (4 sem. hrs each) instead of CHEM 103 and 113

**Students must consult with an advisor on selection of appropriate courses for their particular course of study

***ENEE 300 is a recommended course

Technical Electives Guidelines

Chemical Engineering

Twelve credits of technical electives are required. It is recommended that they be taken during the senior year

Additional guidelines are as follows:

1. Two courses must be taken in one of the areas of specialization given below
2. The remaining technical electives will normally also be chosen from the list given. Upon the approval of your advisor and written permission of the department chair or program director, a limited amount of substitution may be permitted. Substitutes, including ENCH 468 — Research (1 — 3 cr.) must fit into an overall plan of study emphasis.
3. As noted, several of the technical elective courses are sequenced. Check recommended prerequisites when planning your technical electives.

Tachnical Electives — Chemical Engineering Program

Biochemical Engineering
- ENCH 482 Biochemical Engineering (3)
- ENCH 485 Biochemical Engineering Laboratory (2), recommended only if ENCH 482 is taken. Simultaneous enrollment in ENCH 468 (1 credit) is recommended

Polymers
- ENCH 490 Introduction to Polymer Science (3)
- ENCH 492 Applied Physical Chemistry of Polymers (3)
- ENCH 494 Polymer Technology Laboratory (3). Recommended if ENCH 490 or 492 is taken.

Chemical Processing
- ENCH 450 Chemical Process Development (3)

Processing Analysis and Optimization
- ENCH 452 Advanced Chemical Engineering Analysis (counts as Lab.) (3)
- ENCH 453 Applied Mathematics in Chemical Engineering (3)
- ENCH 454 Chemical Process Analysis and Optimization (3)

Admission: All Chemical Engineering majors must meet admission, progress and retention standards of the College of Engineering.

Advising: All students choosing chemical engineering as their primary field must see an undergraduate advisor each semester. Appointments for advising can be made by calling extension 7898 or by going to room 2143 of the Chemical and Nuclear Engineering Building

Coop Program: The chemical engineering program works within the College of Engineering Cooperative Engineering Education Program. For information on this program consult the College of Engineering entry in this catalog or call 454-5191.

Financial Assistance: Financial aid based upon need is available through the University Office of Student Financial Aid. A number of scholarships are available through the College of Engineering. Part-time employment is available in the Department.

Honors and Awards: Annual awards are given to recognize scholarship and outstanding service to the Department, College and University. These awards include the David Arthur Berman Memorial Award, the Engineering Society of Baltimore Award, and the American Institute of Chemists Award for the outstanding senior in chemical engineering. AIChE awards are given to the junior with the highest cumulative GPA as well as to the outstanding junior and outstanding senior in chemical engineering

Student Organization: Students operate a campus student chapter of the professional organization, the American Institute of Chemical Engineers

Course Code Prefix — ENCH

Nuclear Engineering Program (ENNU)

2309 Chemical and Nuclear Engineering, 454-2436

Director: Munno
Professors: Hsu, Munno, Roush, Silverman
Associate Professors: Almenas, Modarres, Pertmer
Assistant Professor: Mosleh
Lecturer: Lee (p t)

The Nuclear Engineering Major: Nuclear Engineering deals with the practical use of nuclear energy from nuclear fission, fusion and radioisotope sources. The major use of nuclear energy is in electric power generation. Other uses are in the areas of chemical processing, medicine, instrumentation, and isotope trace analysis. The nuclear engineer is primarily concerned with the design and operation of energy conversion devices ranging from very large reactors to miniature nuclear batteries, and with the use of nuclear reactions in many environmental, biological and chemical processes. Because of the wide range of uses for nuclear systems, the nuclear engineer finds interesting and diverse career opportunities in a variety of companies and laboratories.

Students may use nuclear engineering as a field of concentration in the Bachelor of Science in Engineering degree program

Requirements for Major: The curriculum is composed of: (1) the required USP (general education) requirements of the campus, (2) a core of mathematics, physics, chemistry, and engineering sciences required of all engineering students; (3) twelve credits of courses selected within a secondary field; (4) twenty-seven credits of nuclear engineering courses including ENNU 215, 440, 450, 455, 460, 465, 480, and 490, (5) the course on environmental effects on materials, ENMA 464. A maximum degree of flexibility has been retained so that the student and advisor can select an elective ENES course, an elective ENNU course, and two technical elective courses. A sample program follows

Freshman Year. The Freshman year is the same for all Engineering departments. Please consult The College of Engineering entry

	Semester I	Semester II
Sophomore Year		
University Studies Program Requirements	3	3
MATH 241 — Calculus III	4	
MATH 246 — Differential Equations		3
PHYS 262, 263 — General Physics	4	4
ENES 230 — Intro. to Materials and Their Applications	3	
ENES 240 — Engineering Computation or ENME 205 — Engineering Analysis and Computer Prog	3	
Secondary Field Electives		3
ENNU 215 — Intro. to Nuclear Technology		3
Total	17	16
Junior Year		
University Studies Program Requirements	3	6
ENNU 440 — Nuclear Technology Laboratory	3	
ENNU 450 — Nuclear Reactor Engineering I	3	
Math-Physics Science Elective	3	
Secondary Field Courses	3	3
ENNU 455 — Nuclear Reactor Engineering II		3
ENNU 460 — Nuclear Heat Transport		3
ENMA 464 — Environmental Effects on Engineering Materials		3
Total	15	18
Senior Year		
University Studies Programs Requirements	3	3
ENNU Elective	3	
ENNU 465 — Nuclear Reactor Systems Analysis		3
Secondary Field Courses	3	3
Technical Electives	3	3
ENNU 480 — Reactor Core Design	3	
ENNU 490 — Nuclear Fuel and Power Management		3
ENES Elective	3	
Total	18	15

Minimum Degree Credits — 120 credits and fulfillment of all department, college, and University requirements

*Qualified students may elect to take CHEM 105 and 115 (4 sem. hrs. each) instead of CHEM 103 and 113

**Students must consult with an advisor on selection of appropriate courses for their particular course of study

Admission: All Nuclear Engineering students must meet admission, progress and retention standards of the College of Engineering.

Coop Program: The nuclear engineering program works within the College of Engineering Cooperative Engineering Education Program. For information on this program, see the College of Engineering entry in this catalog, or call ext. 5191

Advising: Students choosing nuclear engineering as their primary field should follow the listed curriculum for nuclear engineers. They should submit a complete program of courses for approval during their junior year. Students electing nuclear engineering as their secondary field should seek advice from a member of the nuclear engineering faculty prior to their sophomore year. Call extension 2430 to talk to an advisor or to schedule an appointment.

Financial Assistance: Financial aid based upon need is available through the University Office of Student Financial Aid. A number of scholarships are available through the College of Engineering. Part time employment is available in the Department. Of particular interest are scholarships available to qualified students at all undergraduate levels from the Institute for Nuclear Power Operations.

Honors and Awards: Annual awards are given to recognize scholarship and outstanding service to the Department, College and University. These awards include the American Nuclear Society Award for Leadership and Service and the Award for Outstanding Contribution to the ANS Student Chapter. The American Nuclear Society also provides awards to recognize the highest GPA for a student at the senior, junior and sophomore levels and to a senior with greatest scholarship improvement. The Baltimore Gas and Electric Company also grants, through the program, an award for the Outstanding Junior of the year and a scholarship which includes the opportunity for summer employment to an academically qualified student with demonstrated interest in utility employment.

Student Organization: Students operate a campus student chapter of the professional organization, the American Nuclear Society.

Course Code Prefix: ENNU.

Materials Engineering Program (ENMA)

1110C Chemical and Nuclear Engineering Building, 454-2434

Director: Wuttig
Professors: Arsenault, Dieter*, Wuttig
Associate Faculty: Armstrong*
Assistant Professors: Ankem, Salamanca-Young

*member of mechanical engineering department

The Materials Engineering Major: The development and production of novel materials has become a major issue in all fields of engineering. Materials which are strong and light at the same time are needed for space structures; faster electro-optical switching materials will result in improved mass communications; and high temperature plastics would improve the efficiency of transportation systems. Many of today's materials requirements can be met by composites. The materials engineering program provides the student with an interdisciplinary science-based education to understanding the structure and resulting properties of metallic, ceramic and polymeric materials. A wide variety of careers is open to graduates of this program ranging from production and quality control in the traditional materials industries to the molecular construction of electronic materials in ultra-clean environments.

Students may use Materials Engineering as a field of concentration in the Bachelor of Science in Engineering degree program.

Requirements for Major: The curriculum is composed of: (1) the required USP (general education) requirements of the campus; (2) a core of mathematics, physics, chemistry, and engineering courses required of all engineering students; (3) twelve credits of courses selected within a secondary, minor field; (4) twenty-three credits of materials engineering courses; and (5) technical electives to be selected by the student and his or her advisor to enrich, specialize or expand certain areas of knowledge within the chosen field.

Freshman Year. The Freshman curriculum is the same for all Engineering departments. Please consult The College of Engineering entry.

	Semester I	Semester II
Sophomore Year		
University Studies Program Requirements		3
MATH 241 — Calculus III	4	
MATH 246 — Differential Equations for Scientists and Engineers		3
PHYS 262, 263 — General Physics	4	4
ENES 220 — Mechanics of Materials	3	
CHEM 233, 243 — Organic Chemistry I, II	4	4
ENES 230 — Introduction to Materials and Their Applications	3	
ENME 205 — Engineering Analysis and Computer Prog.		3
Total	17	16

In general, students should not register for 300-400 level engineering subjects until and unless they have satisfactorily completed MATH 241 and 246.

Junior Year		
University Studies Program Requirements	3	3
CHEM 481, 482 — Physical Chemistry I, II	3	3
ENMA 300 — Materials Science and Engineering	3	
ENMA 301 — Materials Engineering Laboratory	1	
ENMA 462 — Deformation of Engineering Materials	3	
ENMA 463 — Chemical, Liquid and Powder Process of Engineering Materials		3
Minor Courses	3	3
Technical Electives		3
Total	16	18
Senior Year		
University Studies Program Requirements	6	6
ENMA 470 — Structure and Properties of Engineering Materials	3	
ENMA 471 — Phys. Chem. of Engineering Materials	3	
ENMA 472 — Technology of Engineering Materials	3	
ENMA 473 — Processing of Engineering Materials		3
Minor Courses	3	3
Technical Electives		3
Total	15	18

Minimum Degree Credits — 120 credits and the fulfillment of all Department, College, and University requirements.

*Qualified students may elect to take CHEM 105 and 115 (4 sem. hrs. each) instead of CHEM 103 and 113.

**Students must consult with an advisor on selection of appropriate courses for their particular course of study.

Admission: All Materials Engineering students must meet admission, progress and retention standards of the College of Engineering.

Advising: Students choosing materials engineering as their primary field should follow the listed curriculum for materials engineers. They should submit a complete program of courses for approval during their junior year. Students electing materials engineering as their secondary field should seek advice from the director of the materials engineering faculty prior to their sophomore year. Call extension 2434 to talk to the director or to schedule an appointment.

Coop Program: The materials engineering program works within the College of Engineering Cooperative Engineering Education Program. For details, see The College of Engineering entry in this catalog.

Financial Assistance: Financial Aid based upon need is available through the University Office of Student Financial Aid. A number of scholarships are available through the College of Engineering. Part-time employment is available in the Department.

Honors and Awards: Each of the large number of professional materials oriented societies such as the metallurgical and ceramic societies sponsor awards to recognize outstanding scholarship and undergraduate research. All students enrolled in the materials engineering program are encouraged to select a faculty advisor who in their junior and senior year will guide them towards the nomination for these awards.

Student Organization: All major professional materials societies invite students to become active in their undergraduate divisions. The materials faculty members specializing in certain areas of materials engineering will guide the students toward the society of their choice.

Course Code Prefix: ENMA.

Chemistry and Biochemistry (CHEM, BCHM)

College of Life Sciences

Chairman's Office: Room 1309 Chemistry Building; 454-4114
Student Information: Room 1320 Chemistry Building; 454-2605

Chair: Dr. Paul Mazzocchi
Associate Chair: Dr. Bruce Jarvis
Professors: Alexander, Ammon, Bailey, Bellama, Castellan, Freeman, Gerlt, Gordon, Greer, Hansen, Helz, Henery-Logan, Holmlund, Huheey, Jarvis, Khanna, Kozarich, Mariano, Mazzocchi, Miller, Moore, Munn, O'Haver, Ponnamperuma†, Stewart, Tossell, Walters, Weiner
Associate Professors: Armstrong, Boyd, DeShong, DeVoe, Dunaway-Mariano, Kasler, Migneret, Murphey, Ondov, Sampugna
Assistant Professors: Brusilow, Herndon, Julin, Poli, Ruett-Robey, Thirumalai
Emeriti: Adler, Jaquith, Keeney, McNesby, Pratt, Rollinson, Sturtz, Svirbely, Vanderslice, Veitch

†Distinguished Scholar - Teacher

The Major: The Department of Chemistry and Biochemistry offers the B.S. degree in both Chemistry and Biochemistry. Either curriculum is designed to prepare major students for entering graduate school, for career opportunities in chemical and pharmaceutical industries, for basic research positions in government and academic laboratories or to attend professional schools.

Requirements for the Chemistry Major: The major in chemistry requires thirty-nine credits in chemistry, of which sixteen are lower-level and twenty-three are upper-level. Six credits of the twenty-three upper-level requirements must be selected from approved chemistry courses. The program is designed to provide the maximum amount of flexibility to students seeking preparation for either the traditional branches of chemistry or the interdisciplinary fields. In order to meet requirements for a degree to be certified by the American Chemical Society, students must complete two additional laboratory courses selected from CHEM 433, 443, 425, 487 and BCHM 463.

A sample program, listing only the required or recommended courses, is given below. It is expected that each semester's electives will include courses intended to satisfy the general requirements of the University or of the College of Life Sciences, plus others of the student's choice.

Each required chemistry course must be passed with a minimum grade of C. Required supporting courses must be passed with a C average.

		Semester Credit Hours
University Studies Program Requirements		30
College of Life Sciences Core Requirements		40
Departmental Requirements		19
CHEM 481: Physical Chemistry I	3	
CHEM 483: Physical Chemistry Laboratory I	2	
CHEM 482: Physical Chemistry II	3	
CHEM 484: Physical Chemistry Laboratory II	2	
CHEM 401: Inorganic Chemistry	3	
400-Level Chemistry courses	6	
Electives		31
Total		120

Requirements for the Biochemistry Major: The department also offers a major in biochemistry. In addition to the sexteen credits of lower-level chemistry, the program requires CHEM 321 and BCHM 461, 462, and 464, CHEM 481, 482 and 483; MATH 140 and 141; PHYS 141 and 142; and nine credits of approved biological science that must include at least one upper-level course. A sample program, listing only the required courses, is given below. It is expected that each semester's electives will include courses intended to satisfy the general requirements of the University or of the College of Life Sciences, plus others of the student's choice.

Each required chemistry and biochemistry course must be passed with a minimum grade of C. Required supporting courses must be passed with a C average.

		Semester Credit Hours
University Studies Program Requirements		30
College of Life Sciences Core Requirements		40
Departmental Requirements		23-24
Approved Biological Science Elective	3-4	
CHEM 481: Physical Chemistry I	3	
CHEM 483: Physical Chemistry Laboratory I	2	
CHEM 482: Physical Chemistry II	3	
CHEM 484: Physical Chemistry Laboratory II	3	
BCHM 461: Biochemistry I	3	
BCHM 462: Biochemistry II	3	
BCHM 464 Biochemistry Laboratory II	2	
Approved Upper-level Biological Science	4	
Electives		26-27
Total		120-121

Advising: Prior to registration for each semester, advising is mandatory. Appointments for advising can be made by contacting the secretary in the Office of Undergraduate Studies; phone 454-2605. Room 1320 in the Chemistry Building.

Financial Assistance: Two outstanding juniors who are Chemistry or Biochemistry majors are selected in the Spring of each year to receive $600 tuition scholarships from the John J. Leidy Foundation to be used during the senior year. No application is necessary since all juniors are automatically reviewed by the members of the Awards Committee.

Honors and Awards: In the Junior or Senior year, CHEM 398, *Special Problems for Honor Students*, is an opportunity for students with a GPA of 3.0 or better to conduct honors research. Dr. Herndon (Room 2130 Chemistry Building, 454-4133) is the Coordinator. After successful completion of a senior thesis and seminar, graduation "with honors" or "with high honors" in Chemistry can be attained.

Student Organizations: Alpha Chi Sigma Chemistry Fraternity is a professional co-ed fraternity which recruits members from Chemistry, Biochemistry, and related science majors during each Fall & Spring semester. Members must have completed 1 year of General Chemistry and are expected to complete a minimum of 4 semesters of Chemistry. The fraternity, which averages 30 members, holds weekly meetings and provides tutoring once a week for students in lower division chemistry courses. The office is Room 3211 in the Chemistry Building. Dr. Adler (Room 2228, phone 454-2613) is the faculty moderator.

Course Code Prefix: CHEM, BCHM

Civil Engineering (ENCE)

1173D Engineering Classroom Building, 454-2438

Chair: Professor James Colville
Professors: Aggour, Albrecht, Birkner, Carter, McCuen, Pilcher, Ragan, Sternberg, Witczak, Wolde-Tinsae
Associate Professors: Ayyub, Chang, Garber, Goodings, Hao, Schelling, Schonfeld, Schwartz, Vannoy
Assistant Professors: Austin, Bernold, Chang, Perl, Walters
Senior Research Associate: Rib

The Civil Engineering Major:

Civil Engineering is a people-serving profession, concerned with the planning, design, construction and operation of large complex systems such as buildings and bridges, water purification and distribution systems, highways, rapid transit and rail systems, ports and harbors, airports, tunnels and underground construction, dams, power generating systems, and structural components of aircraft and ships. Civil engineering also includes urban and city planning, water and land pollution and treatment problems, and disposal of hazardous wastes and chemicals. The design and construction of these systems are only part of the many challenges and opportunities faced by civil engineers. The recent revolution in computers, communications and data management has provided new resources that are widely used by the professional civil engineer in providing safe, economical and functional facilities to serve our society.

Requirements for Major:

At both the undergraduate and graduate levels, the department offers programs of study in all six major areas of concentration in civil engineering: construction engineering and management, environmental engineering, geotechnical engineering, structural engineering, transportation engineering, and water resources and remote sensing. A total of 132 credit hours is required for a Bachelor's degree with emphasis in basic science (mathematics, chemistry and physics), engineering science, (mechanics of materials, statics and dynamics), basic civil engineering core courses, and twenty-two credits of technical electives that may be selected from a combination of the six areas of civil engineering concentration. The present undergraduate curriculum, therefore, provides a sensible blend of required courses and electives, which permits students to pursue their interests without the risk of overspecialization at the undergraduate level. Mandatory student evaluations of teaching and a recent departmental peer evaluation of teaching indicates that the quality of teaching and instruction within the department is outstanding.

	Semester Credit Hours I	II
Sophomore Year		
MATH 241 — Calculus III	4	
MATH 246 — Differential Equations for Scientists and Engineers		3
PHYS 262, 263 — General Physics II, III	4	4
ENES 220 — Mechanics of Materials	3	
ENES 221 — Dynamics		3
ENCE 280 — Engineering Survey Measurements	3	
ENCE 221 — Introduction to Environmental Engineering		3
University Studies Program Requirements	3	3
Total	17	16
Junior Year		
ENCE 300 — Fundamentals of Engineering Materials	3	
ENCE 330 — Basic Fluid Mechanics	3	
ENCE 340 — Fundamentals of Soil Mechanics		3
ENCE 350, 351 — Structural Analysis and Design I, II	3	3
ENCE 360 — Engineering Analysis and Computer Programming	4	
ENCE 370 — Fundamentals of Transportation Engineering	3	
ENME 320 — Thermodynamics or		
ENCH 300 — Chemical Process Thermodynamics		3
ENCE — Technical Elective*		3
University Studies Program Requirements		6
Total	16	18
Senior Year		
ENCE — Technical Elective (Group A, B, C, D, E or F)	7	***3
ENCE — Technical Elective	**3	**3
ENEE 300 — Principles of Electrical Engineering		3
Technical Elective**		3

University Studies Program Requirements	6	3
Total	16	15

Minimum Degree Credits — 132 credits and fulfillment of all department, college, and University requirements

* See notes concerning Technical Electives

** One course from available Technical Electives in Civil Engineering or approved Technical Elective outside department

*** These numbers represent three-semester-credit courses

Additional semester credits will be involved to the extent that courses carrying more than three credits are selected

Notes Concerning Technical Electives in Civil Engineering

A minimum of twenty-two credit hours of technical electives are required as follows:

1. All three courses from one area of concentration A, B, C, D, E or F.
2. Any four courses from the entire technical list, such that the following is met.
   (a) One course must be from Area G
   (b) No more than two courses within any area of concentration A, B, C, D, E, F or G

Areas of Concentration

A. Structures: ENCE 450 (3); 451 (4); 452 (3).
B. Water Resources: ENCE 430 (4); 431 (3); 432 (3).
C. Environmental: ENCE 433 (3); 434 (3); 435 (4).
D. Transportation. ENCE 470 (4); 473 (3); 474 (3).
E. Geotechnical: ENCE 440 (4); 441 (3); 442 (3).
F. Construction Engineering Management ENCE 421 (3); 411 (4); 420 (3).
G. Support Courses ENCE 410 (3), 461 (3); 489 (3).

Admission: See College of Engineering entrance requirements.

Advising: All students are assigned a faculty advisor who assists in course selection and scheduling throughout the student's entire undergraduate program. For advising contact Dr. Garber at 454-2225 in Room 1163 Engineering Classroom Building. Call for an appointment.

Fieldwork and Internship Opportunities: Several excellent co-op opportunities are available for Civil Engineering students. See the College of Engineering entry in this catalog for a full description of the Engineering co-op program, or contact Heidi Sauber at 454-5191.

Financial Assistance: The Department of Civil Engineering awards a number of academic scholarships. These awards are designated primarily for junior and senior students. A department scholarship committee solicits and evaluates applications each year.

Honors and Awards: See College of Engineering Honors Program. The Department of Civil Engineering offers the following awards: 1) The Civil Engineering Outstanding Senior Award, 2) The ASCE Outstanding Senior Award; 3) The Woodword-Clyde Consultants Award; 4) The Bechtel Award; 5) The Chi Epsilon Outstanding Senior Award; 6) The Ben Dyer Award; and 7) The ASCE Maryland Section Award.

Student Organizations: Student organizations include the American Society of Civil Engineers Student Chapter which is open to all civil engineering students. The Civil Engineering Honor Society, Chi Epsilon, elects members semi-annually. Information on membership and eligibility for these student organizations may be obtained from the President of each Society, Room 0401, Engineering Classroom Building.

Course Code Prefix: ENCE

Classics (CLAS)

College of Arts and Humanities

4220 Jimenez, 454-2510

Professor and Chair: Rowland
Associate Professors: Duffy, Hallett, Hubbe, Staley
Assistant Professors: Doherty, Stehle
Visiting Faculty (1988/89): Dexter, Meltzer

Classics is the study of the languages, literature, culture and thought of ancient Greece and Rome. Students at the University of Maryland at College Park may major in Classics with four options and may enroll in a variety of courses on the classical world. These options include Latin, Greek, Greek and Latin, and Classics in Translation.

Major Requirements

Option A: Latin

Thirty credits of Latin at the 200-level or higher, at least twelve of which must be at the 400-level or higher, plus nine credits of supporting courses (for example, CLAS 170, HIST 130, and one 300- or 400-level course in Roman history).

Option B: Greek

Thirty credits of Greek at the 200-level or higher, at least twelve of which must be at the 400-level or higher, plus nine hours of supporting courses (for example, CLAS 170, HIST 130, and a 300- or 400-level course in Greek history).

Option C: Greek and Latin

Thirty credits of either Greek or Latin and twelve hours of the other classical language, plus nine hours of supporting courses (for example, CLAS 170, HIST 130, and a 300- or 400-level course in Greek or Roman history). Students with no previous training in the second language may count introductory level courses as part of the twelve hour requirement.

Option D: Classics in Translation (Classical Humanities)

Eighteen credits in CLAS courses including CLAS 100 (Classical Foundations) and a senior seminar or thesis; twelve credits in Greek or Latin courses; twelve credits in supporting courses (normally in Art History, Archaeology, Architecture, Government, History, Linguistics or Philosophy). Note: CLAS 280 and CLAS 290 do not count toward this degree; 300- and 400-level courses in LATN and GREK may, with permission, be included among the eighteen required hours in CLAS.

Course Code Prefixes: CLAS, GREK, LATN

Communication Arts and Theatre (CMRT)

College of Arts and Humanities

1147B Tawes Fine Arts Building, 454-2541

Professor and Chair: Gillespie
Professors: Aylward, Bentley, Fink, Gomery, Kolker, Meersman, Pugliese (Emeritus), Strausbaugh (Emeritus), Wolvin
Associate Professors: Falcione, Ferguson, Freimuth, Gaines, Kirkley, Klumpp, McCaleb, O'Leary, Weiss
Assistant Professors: Blum, Brown, Coleman, Edgar, Elam, Kriebs, Marchetti, Milton, Parks, Patrick, Patterson, Pecora, Robinson, Shyles, Stowe, Ufema
Instructor: Donnelly
Lecturers: Doyle, Lancaster, Niles (p.t.), Niven (p.t.), Novelli (p.t.), Tavares (p.t.)

The department curricula lead to the Bachelor of Arts degree and permit the student to develop a program with emphasis in one of the three areas of the department: (1) speech communication (political communication, organizational communication, health communication, educational communication, and interpersonal communication); (2) theatre (history, design, and performance; production in a liberal arts theatre program); (3) radio-television-film (broadcasting and film theory, production, history, criticism, and research in a comprehensive program). In cooperation with the Department of Curriculum and Instruction, the department provides an opportunity for teacher certification in speech and drama.

The curriculum is designed to provide: (1) a liberal education through special study of the arts and sciences of human communication; (2) preparation for numerous opportunities in business, government, media and related industries, education, and the performing arts.

Since communication and theatre are dynamic fields, the course offerings are under constant review and development, and the interested student should obtain specific information about a possible program from a department advisor.

Major requirements are thirty hours of coursework in speech communication and radio-television-film, or forty-two hours of coursework in theatre, exclusive of those courses taken to satisfy college requirements. Of the thirty hours, at least fifteen (twenty-one in theatre) must be upper level (300 or 400 series). No course with a grade less than C may be used to satisfy major or supporting area requirements.

Each of the possible concentrations in the department requires certain courses to provide a firm foundation for the work in that area.

Speech Communication

Required Major Courses (total of thirty credits): SPCH 200, 230, 400, 401, and 402. Three credits chosen from the following SPCH 450, 471, 475 (Theories of Persuasion), 424 or 435. Twelve semester credit hours in SPCH courses, at least nine of which must be at the 300-400 level.

Supporting Courses: (total of eighteen credits): 1. Nine credits of cognate courses selected from another discipline complementary to the major: 2. Nine credits to develop essential intellectual skills; three credits in statistical analysis, selected from STAT 100, PSYC 200, SOCY 201, BMGT 230, or EDMS 451. Three credits in critical analysis, selected from ENGL 301, ENGL 453, or CMLT 488. Three credits in structural analysis of language selected from LING 200, HESP 120, ANTH 371, ENGL 384, or ENGL 385. Courses taken to fulfill the supporting area requirement can also be used to satisfy USP requirements. No course with a grade of less than C may be used to satisfy major or supporting area requirements.

Theatre

Required Core Courses for All Majors: THET 110, 111, 120, 170, 330, 479, 480, 490, and 491

The student may select one of two emphases:

Design Emphasis: THET 273, 375, 476, 481, plus additional courses in theatre to make the minimum.

Supporting courses for the Design Emphasis include one from each of the following: ENGL 403, 404, or 405; ENGL 434 or 454, DANC 100, or 210 or 310; MUSC 100 or 130; any ARTH or ARTT course approved by Theatre Advisor.

Performing Emphasis: THET 221, 320, 420 or 430, 474 or approved Technical/Design course, plus additional courses in theatre to make up the minimum.

Supporting courses for the Performing Emphasis include one from each of the following: ENGL 403, 404, or 405; ENGL 434 or 454, DANC 100; MUSC 100 or 130; any ARTH or ARTT course approved by the Theatre Advisor.

Radio-Television-Film

Admission to the program in Radio, Television, and Film is competitive. A small number of academically talented freshman can be admitted directly into the program: National Merit Finalists and Semifinalists, National Achievement Finalists and Semifinalists, President's Scholars, Banneker Scholars, Maryland Distinguished Scholars, and students with a combined SAT score of 1200 coupled with a minimum of 3.00 high school GPA in academic subjects.

Admission for all others requires that the student has

1. earned at least twenty-eight credits with a grade point average of 2.6 (this average incudes transfer credit grades);
2. completed, as a part of the twenty-eight required credits, English 101 and Math 110 (or their equivalents) and RTVF 222, all with a grade of C or better.

The student must maintain the cumulative grade point average for at least one semester after admission to the RTVF major.

Students who have met the standards for admission should visit the Office of Undergraduate Admissions (Mitchell Building) to complete an application. At this time students should present a copy of their transcript to demonstrate they have met the requirements.

Required Courses: RTVF 222 and either 223 or 314.

Supporting Courses: Fifteen graded credit hours of coherently related subjects, selected in consultation with an advisor and considering the personal goals of the student.

The department offers numerous specialized opportunities for those interested through co-curricular activities in theatre, film, television and radio. For the superior student an Honors Program is available. Interested students should consult their advisor for further information no later than the beginning of their junior year.

Course Code Prefixes — SPCH, RTVF, THET.

Comparative Literature Program (CMLT)

College of Arts and Humanities

4223 Jimenez Hall, 454-2685

Professor and Director: Heyndels
Professors: Beck, Beichen, Bentley, Berlin, Best, Bryer, Clignet, R Cohen, Freedman, Fuegi, Gillespie, Gramberg, Haber, Herin, Holton, Jones, Lifton, MacBain, Oster, Pacheco, Panichas, Phister, Price, Rimer, Rowland, J. Russell, Schoenbaum, Sosnowski, Therrien, Trousdale
Associate Professors: Aguilar-Mora, Barry, Bennett, Bilik, R.H Brown, Caramello, Coogan, David, Duffy, Fink, Flieger, Fredericksen, Glad, Grimsted, Gullickson, Hage, Hallett, Handelman, J. Harris, Herman, Igel, Joyce, Kelly, Kerkham, Klein, Leinwand, Levinson, Loizeaux, Mintz, Peterson J. Robinson,C. Russell, Staley, Tarica
Assistant Professors: Falvo, Kristal, Levine, Strauch, Zappala
Instructor: Spector
Faculty Research Assistant: Taitsch

Undergraduates may emphasize Comparative Literature as they work toward a degree in one of the departments of literature or in another department associated with the Comparative Literature Program. Each student will be formally advised by the faculty of his or her "home" department in consultation with the Director of the Comparative Literature Program. In general, every student will be required to take CMLT 401 and CMLT 402. The various departments concerned with have additional specific requirements.

Students emphasizing comparative literature are expected to develop a high degree of competence in at least one foreign language.

Coursework may not be limited to the nineteenth and twentieth centuries.

CLAS 170 is highly recommended for those contemplating graduate work in comparative literature.

Course Code Prefix — CMLT

Computer Science (CMSC)

College of Computer, Mathematical and Physical Sciences

2309 Computer and Space Sciences Building, 454-2002

Professor and Acting Chair: Tripathi
Assoc. Chairs: Austing, Education; Agrawala, Facilities
Professor Emeritus: Atchison
Professors: Agrawala, Chu, Davis, Edmundson[1], Gannon, Kanal, Mills, Minker, O'Leary, Rosenfeld, Samet, Stewart, Tripathi
Associate Professors: Austing, Knott (Visiting), Kruskal, Nau, Perlis, Reggia[3], Rossopoulos, Shneiderman, Smith, Zelkowitz
Assistant Professors: Aloimonos, Amir, Carson, Elman, Faloutsos, Fontecilla, Furuta, Gasarch, Hendler, Jalote, Johnson, Mark, Mount, Plateau, Pugh, Purtilo, Ricart[2], Rombach, Salem, Sellis, Shankar, Stotts

[1] Jointly with Mathematics
[2] Jointly with Computer Science Center
[3] Jointly with the School of Medicine, UMAB

The Computer Science Major

Computer science is the study of computers and computational systems — their theory, design, development, and application. Principal areas within computer science include artificial intelligence, computer systems, data-base systems, human factors, numerical analysis, programming languages, software engineering, and theory of computing. Computer science incorporates concepts from mathematics, engineering, and psychology.

A computer scientist is concerned with problem solving. Of interest are problems ranging from the abstract to the practical — from determining what kinds of problems can be solved with computers and the complexity of their algorithmic solutions, to computer systems suitable for human use. Computer scientists design and analyze algorithms to solve problems, and implement the designs by writing correct, efficient programs. They design, develop, and study the performance of different computer architectures, operating systems, databases, and programming languages. Computer scientists are interested in problems pertaining to the modeling of human behavior (e.g., expert systems, robotics) as well as those involving extensive numerical computations.

The Bachelor of Science degree program in Computer Science is designed to prepare students for employment and graduate work. The program begins with mathematical foundations of programming methods. It includes a wide range of courses which provide breadth an which enable a each student to select areas of individual interest.

Requirements for a Computer Science Major. The course of study for each computer science major must include all of the following requirements:

1. A minimum of thirty-five credit hours of CMSC courses which satisfy the following conditions:
   (a) A grade of C or better must be achieved in each course.
   (b) CMSC 250. This requirement is effective for all UMCP students entering the major in Spring 1988 or later. It also applies to students who matriculate at a Maryland public community college after Spring 1988 and to students in an articulated transfer program who transfer to UMCP after the beginning of Fall 1990.
   (c) At least twenty-four credit hours must be at the 300-400 levels including CMSC 311, CMSC 330 and at least fifteen credit hours of the following courses: 411, 412, 420, 430, 435, 451, 467, one of 421, 424 or 426, one of 450 or 452, one of 460 or 466.

2. The mathematics calculus sequence MATH 140, 141 (or MATH 150, 151) and at least two MATH, STAT, or MAPL courses which require MATH 141 (or a more advanced mathematics course) as a prerequisite. Of the two courses, at least one must be a statistics course. A grade of C or better must be achieved in each course. No course which is crosslisted as CMSC may be counted in the requirement.
3. A minimum of twelve credit hours of 300-400 level courses (plus their prerequisites) in one discipline outside of computer science with an average of C or better. No course crosslisted as CMSC may be counted in this requirement.
4. Thirty-nine credit hours which satisfy the University Studies Program (USP). Courses taken to satisfy these requirements may also be used to satisfy major requirements.
5. Electives to obtain at least the minimum 120 hours needed for graduation. (Students may wish to choose their electives to satisfy the requirements of another department's degree program, and, by so doing, qualify for a double major.)

Selective Admissions Policies.
Freshmen: Admission to the major is competitive for incoming freshmen. Applicants who have designated a computer science major will be selected for admission on the basis of academic promise and available space. Applicants admissible to the University but not to the major will be offered admission to pre-computer science. A pre-computer science major is not assured eventual admission to the major. Because of space limitations the University may not be able to offer admission to all qualified applicants. College Park strongly urges early application.

Transfer: Admission to the major is competitive for transfer students. Applicants who have designated a computer science major will be selected for admission on the basis of academic promise and available space. Transfer applicants enrolled prior to May 1984 in a computer science program in a Maryland Community College, in a Northern Virginia Community College, or from the computer science program at the University of Maryland Baltimore County (UMBC) will be offered admission to the major under policies in effect at the time of their initial enrollment in the transfer program at the sending institution. All other transfer applicants must compete for enrollment in the College based upon the criteria in effect for the semester during which the student wishes to enroll. Because of space limitations the University may not be able to offer admission to all qualified applicants. College Park strongly urges early application.

Courses: All pre-computer science majors must take CMSC 112 and 113 and MATH 140 and 141. After completing at least twenty-eight credits, with at least a 2.3 GPA in the required courses, pre-majors may apply to be majors. Space limitations mean that not all qualified applicants may be admitted to the major. Computer science courses 300-level and above are restricted to majors only.

Introductory Computer Science Courses. The department offers a choice of courses, CMSC 103, 110, or 120, for students with little or no computer background.

CMSC 103 is considered a terminal course for liberal arts majors. It provides an introduction to the use of a computer and application of software.

Non-majors (particularly scientists and engineers) who may want to take additional CMSC courses should take CMSC 110 or CMSC 120 instead of CMSC 103. Students who complete CMSC 110 or CMSC 120 must still take CMSC 112-113 to become majors. Non-majors wishing to take upper-level courses must take CMSC 112-113.

Majors should take the CMSC 112, 113 sequence in their first year. These courses emphasize the use of formal techniques in computer science: grammars, discrete mathematics, functional semantics, and program correctness.

Advising. Advisors are available during the normal business hours Monday through Friday. Detailed information about advising and the undergraduate program may be obtained in the Department's Education Office, Room 1109, A.V. Williams Building. The telephone number is 454-2002.

Honors Program. A departmental honors program provides an opportunity for selected undergraduate students in computer science to begin scholarly research by conducting suitable independent study in a direction and at a pace not possible in the customary lecture courses. Students are accepted into the program after their sophomore year based on their overall academic performance in computer science courses taken.

Course Code Prefix: CMSC.

Counseling and Personnel Services (EDCP)

College of Education

3218 Benjamin Building, 454-2026

Professor and Chair: Hershenson
Professors: Birk, Magoon, Marx, Power, Pumroy, Schlossberg
Associate Professors: Allan, Greenberg, Hoffman, Lawrence, Leonard, Medvene, Rhoads, Scales, Sedlacek, Spokane, Strein, Teglasi, Westbrook
Assistant Professors: Boyd, Clement, Freeman, Komives, Lucas, McEwen, Mullison, Thomas

Programs of preparation are offered by the Department of Counseling and Personnel Services at the master's degree, advanced graduate specialist, and doctoral degree levels for counselors in elementary and secondary schools, rehabilitation agencies, community agencies, business and industry, and college and university counseling centers. The department also offers graduate programs of preparation for other personnel services: college student personnel administrators, pupil personnel workers, and school psychologists. The department offers a program jointly with the Department of Psychology which leads to a Ph.D. in counseling psychology.

While the department does not offer an undergraduate major, it does offer a number of courses which are open to undergraduates and are suggested for students considering graduate work in counseling or other human service fields.

Course Code Prefix — EDCP

Criminal Justice and Criminology (CRIM, CJUS)

College of Behavioral and Social Sciences

2220 LeFrak Hall, 454-4538

Director and Professor: Wellford
Professor Emeritus: Lejins* (Sociology)
Criminal Justice Curriculum
Professor: Sherman
Associate Professors: Ingraham, Paternoster
Part-time Lecturers: Katznelson, Mauriello, Verchot
Criminology Program
Professor: Loftin
Associate Professor: Maida, Smith
Assistant Professors: Gottfredson
Part-time Lecturer: Siman

* Joint appointment with unit indicated

The purpose of the institute is to provide an organization and administrative basis for the interests and activities of the University, its faculty and students in the areas usually designated as criminal justice, criminology, and corrections. The institute promotes study and teaching concerning the problems of crime and delinquency by offering and coordinating academic programs in the areas of criminal justice, criminology, and corrections; managing research in these areas; and conducting demonstration projects. The Institute sponsors the annual Alden Miller Lecture, the Criminal Justice Student Association, Alpha Phi Sigma, and an annual job fair.

The institute comprises as its component parts:
1. The Criminology Program, leading to a Bachelor of Arts degree.
2. The Criminal Justice Curriculum, leading to a Bachelor of Arts degree.
3. Graduate Program offering M.A. and Ph.D. degrees in Criminal Justice and Criminology.

Criminology

The major in criminology comprises thirty hours of coursework in Criminology and Criminal Justice. Eighteen hours of social or behavioral science disciplines are required as a supporting sequence. In these supporting courses a social or behavioral science statistics and a social or behavioral science methods course are required. In addition, two psychology elective courses and a general social psychology course are required. Regarding the specific courses to be taken, the student is required to consult with an advisor. No grade lower than C may be used toward the major or the supporting courses.

Major	*Semester Credit Hours*
CRIM 220	3
CRIM 450	3
CRIM 451	3
CRIM 452	3
CRIM 453	3
CRIM 454	3
CRIM/CJUS Elective	6
CJUS 100	3
CJUS 230	3
Total	30

Semester

Supporting	*Credit Hours*
PSYC 353	3
Social Psych — such as PSYC 221, SOCY 230, SOCY 430, or SOCY 447	3
PSYC electives	6
Soc. Sci. statistics	3
CRIM/CJUS 300	3
	18
Total for Major and Supporting	48

Criminal Justice

The major in criminal justice comprises thirty hours of course work in criminal justice and criminology, the latter being offered as courses in the Criminology Program, divided as follows: eighteen, but not more than twenty-four hours in criminal justice; six, but not more than twelve hours in criminology. In addition to major requirements, a student must take six hours in methodology and statistics, and a support in sequence of courses totalling eighteen hours must be taken in government and politics, psychology, sociology, business management, counseling, or Afro-American Studies. No grade lower than C may be used toward the major, or to satisfy the statistics-methodology requirement. An average of C is required in the supporting sequence courses.

Major Requirements (Core)	*Semester Credit Hours*
CJUS 100	3
CJUS 230	3
CJUS 234	3
CJUS 340	3
CRIM 220	3
CRIM 450	3

(Electives)	*Semester Credit Hours*
CJUS 220	3
CJUS 320	3
CJUS 330	3
CJUS 350	3
CJUS 360	3
CJUS 398	3
CJUS 399	3
CJUS 444	3
CJUS 462	3
CJUS 432	3
CRIM 451	3
CRIM 453	3
CRIM 454	3
CRIM 455	3
Total	30

Supporting Area	*Semester Credit Hours*
Social Science Statistics	3
CRIM/CJUS 300	3

Supporting sequence: Eighteen credit hours of specific recommended courses in GVPT, SOCY; BMGT, PSYC, AASP, and CAPS (see recommended list in Institute Office) 18

	24
Total for Major and Supporting	54

Advising for Criminology and Criminal Justice majors is available in the institute (454-4538). All majors are strongly encouraged to see an advisor at least once each semester.

Internships are available through CJUS 398 and CRIM 359 in a variety of federal, state, local, and private agencies.

Honors Program

The Honors Program provides superior students the opportunity for advanced study in both a seminar format and independent study under the direction of the faculty. The Honors Program is a three-semester (nine-credit hour) sequence that a student begins in the spring semester, three or four semesters prior to graduation. CRIM/CJUS 388H, the first course in the sequence, is offered only during the spring semester. The second and third courses in the sequence consist of a year-long research project (six credits, three each semester) or an honors thesis (one semester, three credits) followed by a graduate seminar in the Institute (one semester, three credits). Honors students may count their Honors courses toward satisfaction of their curriculum requirements: if they are criminal justice majors, they may count their Honors courses toward satisfaction of the basic 30-hour requirement, if they are criminology majors, they may count their Honors courses in place of the psychology electives and social psychology supporting course requirements. Requirements for admission to the Honors Program include a cumulative grade-point average of at least 3.25, no grade lower than B for any criminology or criminal justice course, and evidence of satisfactory writing ability.

Course Code Prefixes: CRIM, CJUS.

Curriculum and Instruction (EDCI)

College of Education

Room 2311, Benjamin Building, 454-7346/7

Professor and Chair (Acting): Fey* (Mathematics)
Professors: E.G. Campbell, Fein, Folstrom* (Music), Gambrell, Garner, Guthrie, Holliday, Jantz, Johnson, Layman* (Physics), Lockard* (Botany), Roderick, Weaver, Wilson
Associate Professors: Amershek, Borko, Brigham, P. Campbell, Cirrincione* (Geography), Craig, Davey, Davidson, DeLorenzo, Dreher, Eley, Farrell* (History), Heidelbach, Henkelman, Herman, Klein, McCaleb* (Theatre), McWhinnie, Saracho, Slater
Assistant Professors: Gillingham, Graeber, Krajcik, Markham, O'Flahaven, H. Williams* (Library Science), Young* (Physical Education)
Emeriti: Blough, Carr, Duffey, Leeper, Risinger, Schindler, Stant

*Joint Appointment with unit indicated

The Department of Curriculum and Instruction Major: The Department of Curriculum and Instruction offers three undergraduate curricula leading to the Bachelor of Science or Bachelor of Arts degree:

1. Early Childhood Education — for the preparation of teachers in preschool, kindergarten, and grades 1-3
2. Elementary Education — for the preparation of teachers of grades 1-8 and
3. Secondary Education — for the preparation of teachers in various subject areas for teaching in middle schools and grades 7-12. The subject areas include, art, English, foreign language, mathematics, music, speech/English, social studies, and theatre/English.

Requirements for Major Including Program Options: All Teacher Education Programs have designated pre-professional courses and a specified sequence of professional courses. Before students can enroll in courses identified as part of the professional sequence, they must first gain admission to the College of Education's Teacher Education Program.

Admission: Application for admission to teacher education must be made early in the semester prior to beginning professional courses. The deadlines for making application are October 1 and February 1. Admission procedures and criteria are explained in "Entrance Requirements" in the section headed College of Education.

Advising: Advising is mandatory for all pre-education majors. Students will receive advising through advising workshops which will be held during the pre-registration period. Information regarding advising workshop schedules will be available with pre-registration materials.

Honors and Awards: Early Childhood Education majors are eligible for the Ordwein Scholarship. Information is available in the Department office.

Student Organizations: The Department of Curriculum and Instruction sponsors a chapter of the Undergraduate Teacher Education Association (UTEA). Information concerning the organization is available through the Department's office in Benjamin Building, Room 2311.

EARLY CHILDHOOD EDUCATION

Graduates of the Early Childhood Education program receive a Bachelor of Science degree and meet the requirements for teaching preschool, kindergarten and primary grades in Maryland, the District of Columbia and most other states.

Required courses

Courses which are required in the program of studies for Early Childhood and which will also will satisfy University Studies program requirements are the following:
PSYC 100 (3) USP Area D
*Social Science or History Courses: ANTH, GEOG, GVPT, ECON, SOCY
HIST (6) USP Areas A and D
HIST 156 (3) USP Area A
Biological Science with Lab: BOTN, ZOOL, MICB, ENTM (4) USP Area B
Physical Science/Lab: ASTR, GEOL, PHYS (4) USP Area B

Other Pre-Professional Requirements

SPCH (100, 110 or 125 recommended) (3)
MATH 210, 211 (4, 4)
Creative Arts: PHED 181, 183, 421; THET 120, 311 (3)

One of the following FMCD 332, SOCY 343, NUTR 100, EDCI 416 (3)
EDCI 280 — School Service Semester

Professional Courses

The Early Childhood Professional Block 1 starts only in Fall Semester and is a prerequisite to Professional Block 2. All pre-professional requirements must be completed before beginning the Early Childhood Professional Blocks. All pre-professional and professional courses must be completed with a grade of C or better prior to student teaching.

Professional Block I:
EDCI 313 — Creative Activities and Materials for the Young Child (3)
EDCI 314 — Teaching Language, Reading, Drama & Literature (3)
EDHD 419A — Human Development and Learning in School Settings (3)
EDCI 318A — Professional Development Seminar (2)
EDCI 318B — Professional Development Seminar (1)
EDCI 385 — Computer Education for Teachers (3)

Professional Block II:
EDCI 315 — The Young Child in the Social Environment (3)
EDCI 316 — The Teaching of Reading: Early Childhood (3)
EDCI 317 — The Young Child and the Physical Environment (3)
EDCI 443A — Literature for Children and Youth (3)
EDHD 419B — Human Development and Learning in School Settings (3)

Professional Block III and/or IV:
EDPA 301 — Foundations of Education (3)
EDCI 411 — Student Teaching — Preschool
EDCI 412 — Student Teaching — Kindergarten (8)
EDCI 413 — Student Teaching — Primary Grades (8)

ELEMENTARY EDUCATION

Students who complete the elementary curriculum will receive the Bachelor of Science degree and will meet the Maryland State Department of Education requirements for the Standard Professional Certificate in Elementary Education. The curriculum also meets the certification requirements in most other states and the District of Columbia.

Students admitted to Elementary Education must complete the following program which includes an area of concentration and a senior thesis.

Required Courses

Courses which will satisfy University Studies Program requirements and which are also required in the Elementary Education program of studies are as follows:
HIST 156 (3) USP Area A
Biological Science/Lab or Physical Science/Lab (4) USP Area B
Social Science: ANTH, ECON, GVPT, GEOG, HIST (3) Area A or D
SOCY 230 (3) Area D

Other Pre-Professional Requirements

MATH 210, 211 (4)
Speech Requirement
Biological Science/Lab or Physical Science/Lab (4) Area B
EDCI 301
EDCI 443
MUSC 155
EDCI 280

Coursework to complete the Area of Concentration (18 semester hours) can be chosen from the following areas: Communications, Foreign Language, Literature, Math, Science, Social Studies. The EDCI Advising Office has detailed information regarding each area of concentration.

Professional Courses:

Professional Semester 1

EDCI 397 — Principles and Methods of Teaching (3)
EDHD 300E — Human Development and Learning (6)
EDCI 385 — Computer Education for Teachers (3)
EDMS 410 — Principles of Testing and Evaluation (3)

Professional Semester 2

EDCI 322 — Curriculum and Instruction in Elementary Education — Social Studies (3)
EDCI 342 — Curriculum and Instruction in Elementary Education — Language Arts (3)
EDCI 352 — Curriculum and Instruction in Elementary Education — Mathematics (3)
EDCI 362 — Curriculum and Instruction in Elementary Education — Reading (3)
EDCI 372 — Curriculum and Instruction in Elementary Education — Science (3)

Professional Semester 3

EDCI 481 — Student Teaching: Elementary (12)
EDCI 464 — Clinical Practices in Reading Diagnosis and Instruction (3)

Professional Semester 4

EDCI 497 — The Study of Teaching (3)
EDCI 489 — Field Experiences in Education (3)
EDPA 301 — Foundations of Education

SECONDARY EDUCATION

The Bachelor of Arts degree is offered in the teaching fields of art, English, foreign languages, mathematics, social studies, speech/English, and theatre/English. The Bachelor of Science degree is offered in art, mathematics, music, science, social studies and speech and drama.

In the areas of art and music, teachers are prepared to teach in both elementary and secondary schools. All other programs prepare teachers for grades five through twelve.

Foreign Language Requirement — Bachelor of Arts Degree.

All students who pursue the Bachelor of Arts degree in secondary education are required to complete two years (twelve semester hours) or the equivalent of a foreign language at the college level. If a student has had three years of one foreign language or two years of each of two foreign languages as recorded on his or her high school transcripts, he or she is not required to take any foreign languages in the college, although he or she may elect to do so.

If a student is not exempt from the foreign language requirements, he or she must complete courses through the 104 level of a modern language or 204 level of a classical language.

In the modern languages — French, German, and Spanish — the student should take the placement test in the language in which he or she has had work if he or she wishes to continue the same language; his or her language instruction would start at the level indicated by the test. With classical languages, the student would start at the level indicated in this catalog.

For students who come under the provisions above, the placement test may also serve as a proficiency test and may be taken by a student any time (once a semester) to try to fulfill the language requirement.

Students who have studied languages other than French, German, or Spanish, or who have lived for two or more years in a foreign country where a language other than English prevails, shall be placed by the chairperson of the respective language section, if feasible, or by the chairpersons of the foreign language departments. Native speakers of a foreign language shall satisfy the foreign language requirements by taking twelve semester hours of English.

English Education

A major in English Education requires forty-five semester hours in English and speech. All electives in English must be approved by the student's advisor. Intermediate mastery of a modern or classical language is required.

Pre-professional/Subject Area Coursework

SPCH 100, 125, or 220 (3)
Foreign Language (4, 4)
ENGL 101 — Introduction to Writing or ENGL 101H (3)
ENGL 201 — World Literature or ENGL 202 (3)
ENGL 281 — 'Standard English Grammar, Usage, and Diction (3)
ENGL 310 — Medieval and Renaissance British Literature (3)
ENGL 311 — Baroque and Augustan British Literature (3)
ENGL 312 — Romantic to Modern British Literature (3)
ENGL 301 — Critical Methods in the Study of Literature or ENGL 453 (3)
LING 200 — Introductory Linguistics (3)
SPCH 230 — Argumentation and Debate or
SPCH 330, 350 or 356 (3)
ENGL 384 — Concepts of Grammar or ENGL 385, 482, or 484 (3)
ENGL 304 — The Major Works of Shakespeare (3)
ENGL 313 — American Literature or ENGL 430, 431, 432 or 433 (3)
EDCI 466 — Literature for Adolescents (3)
EDCI 467 — Teaching Writing (3)
ENGL 391 — Advanced Composition or ENGL 393 or 493 (3)
ENGL Electives (Upper level) (9)

Professional Courses

EDHD 300S — Human Development and Learning (6)
EDPA 301 — Foundations of Education (3)
EDCI 390 — Principles and Methods of Secondary Education (3)
EDCI 447 — Field Experience in English, Speech, Drama Teaching (1)

EDCI 340 — Curriculum Instruction in Secondary Education: English/Speech/Drama (3)
EDCI 463 — The Teaching of Reading in the Secondary School (3)
EDCI 441 — Student Teaching — Secondary Schools English (12)
EDCI 440 — Student Teaching Seminar in Secondary Education: English, Speech, Drama (1)

Art Education

Students in art education are prepared to teach at any level, K-12

Pre-professional/Subject Area Coursework

ARTH 100 — Introduction to Art (3)
ARTT 110 — Elements of Drawing (3)
ARTT 100 — Elements of Design (3)
SPCH 100 — Basic Principles of Speech Communication or 125 or 220 (3)
ARTH 260 — History of Art I (3)
ARTH 261 — History of Art II (3)
ARTT 320 — Elements of Painting
EDIT 273 — Practicum in Ceramics (3)
ARTT 330 — Elements of Sculpture (3)
ARTT 428 — Painting II (3)
EDCI 406 — Practicum in Art Education: Two Dimensional (3)
EDCI 403 — Teaching of Art Criticism in Public Schools (3)
EDCI 407 — Practicum in Art Education: Three Dimensional (3)
ARTT 340 — Elements of Printmaking: Intaglio

Professional Courses

EDHD 300S — Human Development and Learning (6)
EDCI 390 — Principles and Methods of Secondary Education (3)
EDCI 480 — The Child and the Curriculum — Elementary (3)
EDPA 301 — Foundations of Education (3)
EDCI 300 — Curriculum and Instruction in Art Education (3)
EDCI 401 — Student Teaching in Elementary Schools — Art (4-8) (6)
EDCI 402 — Student Teaching in Secondary Schools — Art (2-8) (6)
EDCI 489 — Field Experiences in Education (3)

Foreign Language Education

The Foreign Language Education curriculum is designed for prospective foreign language teachers in secondary schools. The current focus is on Spanish, French, and German. Students seeking certification in the areas of Hebrew, Italian, Latin, Portuguese, or Russian must apply for credit count certification through the Maryland State Department of Education, rather than a departmental "Approved Program". Further information can be obtained through a foreign language education advisor in the Curriculum and Instruction Office.

A minimum of thirty prescribed semester hours in a foreign language plus nine hours of electives in a related area for a total of thirty-nine hours is required. The student is strongly advised to begin or continue a second foreign language. The foreign language education advisor must approve the nine hours of "related area" credit. The following requirements must be met within the thirty required hours: one year of advanced conversation, one year of advanced grammar and composition, one year of survey of literature, one year of advanced literature (400 level), one semester of advanced civilization (300 or 400 level), and one semester of applied linguistics. Equivalents to the above must be approved by the appropriate education advisor

Pre-professional/Subject Area Coursework

SPCH 100, 125, or 220 — Basic Principles of Speech Communication (3)
Foreign Language, (Intermediate or appropriate level as determined by placement exam) (3,3)
Foreign Language — Grammar and Composition (3,3)
Foreign Language — Survey of Literature (3,3)
Foreign Language — Advanced Conversation (3,3)
Foreign Language — Literature (400 level) (3,3)
Foreign Language — Civilization (3)
Foreign Language or Applied Linguistics (3)
Electives in Foreign Language (6)

Professional Courses

EDHD 300S — Human Development and Learning (6)
EDCI 390 — Principles and Methods of Secondary Education (3)
EDPA 301 — Foundations of Education (3)
EDCI 430 — Student Teaching Seminar in Secondary Education: Foreign Language (3)
EDCI 330 — Curriculum and Instruction in Secondary Education: Foreign Language (3)
EDCI 431 — Student Teaching in Secondary Schools: Foreign Languages (12)
Elective from 400-level courses in foreign language education (3)

Mathematics Education

A major in mathematics education requires the completion of MATH 241 or its equivalent, and a minimum of fifteen semester hours of mathematics at the 400 level (excluding MATH 490); 400 level courses beyond those prescribed (402 or 403, 430) should be selected in consultation with the mathematics education advisor

Pre-professional/Subject Area Coursework

SPCH 100, 125 or 220 (3)
MATH 140, 141 — Calculus I, II (4,4)
Science Requirement (7-10)
MATH 240, 241 — Linear Algebra, Calculus III (4,4)
CMSC 110 — Introduction to Fortran Programming or
CMSC 120 — Introduction to Pascal Programming (4,4)
MATH 430 — Euclidean and Non-Euclidean Geometries (3)
MATH 402 — Algebraic Structures or
MATH 403 — Introduction to Abstract Algebra (3)
MATH Electives (400-level) (9)

Professional Courses

EDHS 300S — Human Development and Learning (6)
EDCI 390 — Principles and Methods of Secondary Education (3)
EDCI 350 — Curriculum and Instruction in Secondary Education: Mathematics (3)
EDPA 301 — Foundations of Education (3)
EDCI 457 — Teaching Secondary Students with Difficulties in Learning Mathematics (3)
EDCI 451 — Student Teaching in Secondary Schools: Mathematics (12)
EDCI 450 — Student Teaching Seminary in Secondary Education: Mathematics Education (3)

Music Education

The curriculum in music leads to a Bachelor of Science degree in education with a major in music education. It is planned to meet the demand for specialists, supervisors, and resource teachers in music in the schools. The program provides training in the teaching of general music/choral and instrumental music and leads to certification to teach music at both elementary and secondary school levels in Maryland and most other states. There are two options. The general music/choral option is for students whose principal instrument is voice or piano; the instrumental option is for students whose principal instrument is an orchestral or band instrument. Students are able to develop proficiency in both certifications by taking additional courses.

Auditions are required for admission to the program. All students teach and are carefully observed in clinical settings by members of the music education faculty. This is intended to ensure the maximum development and growth of each student's professional and personal competencies. Each student is assigned to an advisor who guides him or her through the various stages of advancement in the program of music and music education

Instrumental

Pre-professional/Subject Area Coursework

MUSP 109, 110 — Applied Music (Principal Instrument) (2,2)
MUSC 150, 151 — Theory of Music I, II (3,3)
MUSC 102, 103 — Beginning Class Piano I, II (2,2)
MUSC 116, 117 — Study of Insruments (2,2)
SPCH 100, 125, or 220 (3)
MUED 197 — Pre-Professional Experiences (1)
MUSP 207, 208 — Applied Music (Principal Instrument) (2,2)
MUSC 250, 251 — Advanced Theory of Music I, II (4,4)
MUSC 113, 121 — Class Study of Instruments (2,2)
MUSC 230 — History of Music I (3)
MUSP 305, 306 — Applied Music (Principal Instrument) (2,2)
MUSC 490, 491 — Conducting (2)
MUSC 120, 114 — Class Study of Instruments (2,2)
MUED 470 — General Concepts for Teaching Music (1)
MUED 411 — Instrumental Music: Elementary (3)
MUED 420 — Instrumental Music: Secondary (2)
MUED 410 — Instrumental Arranging (2)
MUSC 330, 331 — History of Music (3,3)
MUSP 409 — Applied Music (Principal Instrument) (2)
MUSC 229 — Ensemble (7)

Professional Courses

EDHD 300S — Human Development and Learning (6)
EDPA 301 — Foundations of Education (3)
EDCI 390 — Principles and Methods of Secondary Education (3)
EDCI 484/494 — Student Teaching: Music (12)

General Music/Choral

Pre-professional/Subject Area Coursework

Other Academic Support Courses
MUSP 109, 110 — Applied Music (Principal Instrument) (2,2)
MUSC 150, 151 — Theory of Music I, II (3,3)
MUSC 100 — Class Voice, MUSC 200 — Advanced Class Voice (2,2) or MUSC 102, 103 — Class Piano (2,2)
MUED 197 — Pre-Professional Experiences (1)
SPCH 100, 125, or 220 (3)
MUSP 207, 208 — Applied Music (Principal Instrument) (2,2)
MUSC 230 — Music History (3)
MUSC 202, 203 — Advanced Class Piano (2,2)
MUSC 250, 251 — Advanced Theory of Music (4,4)
MUSP 405, 409 — Applied Music (Principal Instrument) (2,2)
MUSC 453 — Guitar-Recorder Methods (2)
MUED 472 — Secondary Choral Methods (2)
MUSC 490, 491 — Conducting (2,2)
MUED 478 — Special Topics in Music Education (1)
MUED 470 — General Concepts for Teaching Music (1)
MUED 471 — Elementary General Music Methods (3)
MUSC 330, 331 — History of Music (3,3)
MUSP 410 — Applied Music (Principal Instrument) (2)
MUSC 329 — Major Ensemble (7)

Professional Courses

EDHD 300S — Human Development and Learning (6)
EDCI 390 — Principles and Methods of Secondary Education (3)
EDPA 301 — Foundations of Education (3)
EDCI 484/494 — Student Teaching: Music (12)

*Varies according to incoming placement

Physical Education and Health Education

This curriculum is designed to prepare students for teaching physical education and health in elementary and secondary schools. To obtain full particulars on course requirements, the student should refer to the sections on the Department of Physical Education and the Department of Health Education.

Science Education

A science major consists of a minimum of sixty semester hours' study in the academic sciences and mathematics.

The following courses are required for all science education majors: BOTN 101; CHEM 103; CHEM 104 (except chemistry, physics, and earth science education majors who take CHEM 113); GEOL 100-110; PHYS 121-122 or 141-142; ZOOL 101; and six semester hours of mathematics. Science education majors must achieve a minimum of grade C in all required mathematics, science, and education coursework.

An area of specialization with a minimum of thirty-three semester hours, and the approval of the student's advisor, must be completed in biology, chemistry, physics, and geology, as noted below.

Biology Education

Pre-professional/Subject Area Coursework

BIOL 105 — Principles of Biology I (4)
BIOL 106 — Principles of Biology II (4)
MATH 111 — Introduction to Probability (3)
CHEM 103 — General Chemistry I (4)
CHEM 104 — Fundamentals of Organic and Biochemistry (4)
ZOOL 201, 202 — Human Anatomy and Physiology I and II (4,4)
BOTN 202 — The Plant Kingdom or ZOOL 201 — Animal Diversity (4)
MICB 200 — General Microbiology (4)
PHYS 121 — Fundamentals of Physics I (4)
GEOL 100/110 — Physical Geology and Laboratory (4)
SPCH 100, 125 or 220 (3)
ZOOL 213 or BOTN 414 — Genetics (4)
BOTN 441 — Plant Physiology (4)
BOTN 212, BOTN 417, ZOOL 480 or ENTM 205 — Field Studies (4)
PHYS 122 — Fundamentals of Physics II (4)
BOTN 462-464 or ZOOL 212 — Plant Ecology (4)

Professional Courses

EDHD 300S — Human Development and Learning (6)
EDPA 301 — Foundations of Education (3)
EDCI 489B — Student Teaching Seminar in Science Ed (1)
EDCI 390 — Principles and Methods of Secondary Education (3)
EDCI 370 — Curriculum and Instruction in Secondary Education — Science (3)
EDCI 471 — Student Teaching in Secondary Schools — Science (12)
EDCI 488F — Computers in Science Education (2)

Chemistry Education

Pre-professional/Subject Area Coursework

BIOL 105 — Principles of Biology I (4)
BIOL 106 — Principles of Biology II (4)
CHEM 103 — General Chemistry I (4)
CHEM 113 — General Chemistry II (4)
MATH 140, 141 — Calculus I and II (4, 4)
SPCH 100, 125 or 220 (3)
CHEM 223, 243 — Organic Chemistry I and II (4, 4)
PHYS 141, 142 — Principles in Physics (4, 4)
GEOL 100, 110 — Physical Geology and Lab (4)
CHEM 321 — Quantitative Analysis (4)
CHEM 481, 482 — Physical Chemistry I and II (3,3)
CHEM 483 — Physical Chemistry Laboratory I (2)
CHEM Elective (3)

Professional Courses

EDHD 300S — Human Development and Learning (6)
EDPA 301 — Foundations of Education (3)
EDCI 390 — Principles and Methods of Secondary Education (3)
EDCI 370 — Curriculum and Instruction in Secondary Education — Science (3)
EDCI 471 — Student Teaching in Secondary Schools — Science (12)
EDCI 488F — Computers in Science Education (1)
EDCI 489B — Student Teaching Seminar in Science Education (2)

Earth Science Education

Pre-professional/Subject Area Coursework

GEOL 100, 110 — Physical Geology, Lab (4)
GEOL 102, 112 — Historical Geology and Lab (4)
BIOL 105 — Principles of Biology I (4)
BIOL 106 — Principles of Biology II (4)
MATH 110 or 140 — Elementary Mathematical Models (3) or Calculus I (3)
MATH 111 or 141 — Introduction to Probability (3) or Calculus II (3)
SPCH 100, 125 or 220 (3)
GEOL 340 — Geomorphology (4)
CHEM 103, 113 — General Chemistry I and II (4, 4)
GEOL 322 — Mineralogy (4)
ASTR 100, 122 — Introduction to Astronomy, Lab (4)
Earth Science Elective (6)
GEOL 341 — Structural Geology (4)
PHYS 121, 122 — Fundamentals of Physics I and II (4, 4)

Professional Courses

EDHD 300S — Human Development and Learning (6)
EDCI 390 — Principles and Methods of Secondary Education (3)
EDCI 370 — Curriculum and Instruction in Secondary Education — Science (3)
EDPA 301 — Foundations of Education (3)
EDCI 471 — Student Teaching in Secondary Schools — Science (12)
EDCI 488F — Computers in Science Education (1)
EDCI 489B — Student Teaching Seminar in Science Education (2)

Physics Education

Pre-professional/Subject Area Coursework

CHEM 103, 113 — General Chemistry I and II (4, 4)
MATH 140, 141 — Calculus I and II (4, 4)
PHYS 141, 142 — Principles of General Physics I and II (4, 4)
SPCH 100, 125 or 220 (3)
BIOL 105 — Principles of Biology I (4)
BIOL 106 — Principles of Biology II (4)
PHYS 296 — Intro Lab in Electromagnetic Waves (2)
PHYS 295 — Intro Lab in Electricity and Magneticism (2)
ASTR 100 — Introduction to Astronomy (3)
ASTR 111 — Observational Astronomy Laboratory (1)
MATH 240 — Linear Algebra (4)
PHYS 404 — Intermediate Theoretical Mechanics (3)
PHYS 405 — Intermediate Theoretical Electricity and Magnetism (3)
PHYS 420 — Principles of Modern Physics (3)
PHYS 305 — Physics Shop Techniques (1)
GEOL 100 — Physical Geology (3)
GEOL 110 — Physical Geology Laboratory (1)
PHYS 406 — Optics (3)
PHYS 499 — Special Problems in Physics (2)

Professional Courses

EDHD 300S — Human Development and Learning (6)
EDPA 301 — Foundations of Education (3)
EDCI 390 — Principles and Methods of Secondary Education (3)

EDCI 370 — Curriculum and Instruction in Secondary Education — Science
EDCI 471 — Student Teaching in Secondary Schools — Science (12)
EDCI 489B — Student Teaching Seminar in Science Education (1)
EDCI 488F — Computers in Science Education (2)

Social Studies Education

Option I HISTORY. Requires fifty-four semester hours of which at least twenty-seven must be in history, usually at least six hours in American history; six hours of non-American history; three hours in Pro-Seminar in Historical Writing; and twelve hours of electives, nine of which must be 300-400 level. One course in Ethnic and Minority Studies must be included

Pre-professional/Subject Area Coursework

SPCH 100, 125 or 110 (3)
HIST 156, 157 (U.S.) (6)
HIST (non U.S.) (6)
SOCY 100 or ANTH 101 (3)
GEOG 100 — Introduction to Geography (3)
GEOG 202 or 203 (3)
ECON 205 — Fundamentals of Economics (3)
ECON 310 — Evolution of Modern Capitalism (3)
GVPT 100, 240, 260, or 280 (3)
GVPT 170 — American Government (3)
Social Sciences Electives, upper level (6)
History Electives (12)

Professional Courses

EDHD 300S — Human Development and Learning (6)
EDCI 390 — Principles and Methods of Secondary Education (3)
EDCI 320 — Curriculum and Instruction in Secondary Education — Social Studies (3)
EDCI 421 — Student Teaching in Secondary Schools — Social Studies (12)
EDCI 463 — Teaching of Reading in Secondary Schools (3)
EDCI 420 — Student Teaching Seminar in Secondary Education — Social Studies (3)
EDPA 301 — Foundations of Education (3)

Option II GEOGRAPHY. Requires fifty-four semester hours of which twenty-seven hours must be in geography. GEOG 201, 202, 203, and 305 and are required. The remaining fifteen hours in geography must be upper level courses with one course in regional geography included. One course in Ethnic and Minority Studies must be included

Pre-professional/Subject Area Coursework

SPCH 100, 125 or 110 (3)
GEOG 201 — Geography of Environmental Systems (3)
GEOG 202 — The World in Cultural Perspective (3)
GEOG 203 — Economic Geography (3)
GEOG 305 — Quantitative Methods in Geography (3)
GEOG Electives (15)
HIST (U.S.) 156 or 157 (3)
HIST (non-U.S.) 101, 130-133, 144-145 (3)
SOCY 100 or ANTH 101 (3)
ECON 205 — Fundamentals of Economics (3)
ECON 310 — Evolution of Modern Capitalism (3)
GVPT 100, 240 or 280 (3)
GVPT 170 — American Government (3)
History/Social Science Elective (3)

Professional Courses

EDHD 300S — Human Development and Learning (6)
EDCI 390 — Principles and Methods of Secondary Education (3)
EDCI 320 — Curriculum and Instruction in Secondary Education — Social Studies (3)
EDCI 421 — Student Teaching in Secondary Education — Social Studies (12)
EDCI 420 — Student Teaching Seminar in Secondary Education — Social Studies (3)
EDCI 463 — Teaching Reading in Secondary Schools (3)
EDPA 301 — Foundations of Education (3)

Speech and Drama Education

The major Speech and Drama Education is no longer offered. Majors in Speech/English and Theatre/English are described below

Speech/English Education

Students interested in teaching speech in secondary schools complete a minimum of 30 credits in speech and speech-related courses. Because most speech teachers also teach English classes, the program includes another 30 credits in English and English education. Upon selection of this major, students should meet with an advisor to carefully plan their programs.

Pre-professional/Subject Area Coursework

Speech Area (6): SPCH 100 — Basic Principles or SPCH 107 — Technical Speech Communication, SPCH 110 — Voice & Diction, SPCH 125 — Interpersonal Communication. SPCH 220 — Group Discussion, SPCH 230 — Argumentation and Debate, SPCH 240 — Oral Interpretation
SPCH 470 — Listening (3)
SPCH 200 — Advanced Public Speaking (3)
RTVF 124 — Mass Communication in 20th Century or RTVF 222 or RTVF 314 (3)
HESP 202 — Introduction to Hearing and Speech Sciences or HESP 305 or HESP 400 (3)
THET 110 — Introduction to Theatre (3)
SPCH 350 — Foundations of Communication Theory or SPCH 402 (3)
SPCH 401 — Foundations of Rhetoric (3)
SPCH Upper level electives (6)
ENGL 101 — Introduction to Writing (3)
LING 200 — Introduction to Linguistics (3)
ENGL 201 or 202 — World Literature (3)
ENGL 281 — Standard English Grammar, Usage, and Diction or ENGL 385 or ENGL 482 or ENGL 484 (3)
ENGL 301 — Critical Methods in the Study of Literature or ENGL 453 (3)
ENGL 310, 311 or 312 — English Literature (3)
ENGL 313 — American Literature (3)
ENGL 391 or 393 — Advanced Composition or Technical Writing (3)
EDCI 463 — Teaching of Reading (3)
EDCI 466 — Literature for Adolescents (3)
EDCI 467 — Teaching Writing (3)

Professional Courses

EDHD 300S — Human Development and Learning (6)
EDCI 390 — Principles & Methods of Secondary Education (3)
EDPA 301 — Foundations of Education (3)
EDCI 340 — Curriculum & Instruction in Secondary Education: Eng/Spch/Drama (3)
EDCI 447 — Field Experiences (1)
EDCI 442 — Student Teaching in Speech (6)
EDCI 441 — Student Teaching in English (6)
EDCI 440 — Student Teaching Seminar (1)

Theatre/English Education

Students interested in teaching theatre in secondary schools complete a minimum of 30 credits in theatre and theatre-related courses. Because most theatre teachers also teach English classes, the program includes another 30 credits in English and English education. Upon selection of this major, students should meet with an advisor to carefully plan their programs

Pre-professional/Subject Area Coursework

THET 120 — Acting Fundamentals (3)
THET 170 — Stagecraft (3)
THET 273 — Scenographic Techniques or THET 476 or THET 480 (3)
THET 330 — Play Directing (3)
THET 460 — Theatre Management (3)
THET 479 — Theatre Workshop (3)
THET 490 — History of Theatre I (3)
THET 491 — History of Theatre II (3)
THET electives (3)
SPCH 100 — Basic Principles or SPCH 107 or SPCH 200 or SPCH 230 (3)
ENGL 101 — Introduction to Writing (3)
LING 200 — Introduction to Linguistics (3)
ENGL 201 or 202 — World Literature (3)
ENGL 281 — Standard English Grammar, Usage, and Diction or ENGL 385 or ENGL 482 or ENGL 484 (3)
ENGL 310, 311, or 312 — English Literature (3)
ENGL 313 — American Literature (3)
ENGL 301 — Critical Methods in the Study of Literature or ENGL 453 (3)
ENGL 391 or 393 — Advanced Composition (3)
EDCI 463 — Teaching of Reading (3)
EDCI 467 — Teaching Writing (3)
EDCI 468 — Literature for Adolescents (3)

Professional Courses

EDHD 300S — Human Development and Learning (6)
EDCI 390 — Principles & Methods of Secondary Education (3)
EDPA 301 — Foundations of Education (3)
EDCI 340 — Curriculum & Instruction in Secondary Education: Eng/Spch/Drama (3)

EDCI 447 — Field Experience (1)
EDCI 448 — Student Teaching in Theatre (6)
EDCI 441 — Student Teaching in English (6)
EDCI 440 — Student Teaching Seminar (1)

Course Code Prefix — EDCI

Dance (DANC)

College of Arts and Humanities

1116 Temporary Building EE, 454-4056

Professor and Chair: Wiltz
Professors: Madden (Emerita), M. Rosen, L. Warren
Associate Professors: Dunn, A. Warren
Assistant Professor: J. Frosch-Schroder
Instructors: Haigler, de Robles, Mayes, Rutter-Hill
Lecturers: Butler (p.t.), Druker, Jackson

Recognizing that dance combines both athleticism and artistry, the dance program offers comprehensive technique and theory courses as a foundation for the dance professions. By developing an increasing awareness of the physical, emotional and intellectual aspects of movement in general, the student eventually is able to integrate his or her own particular mind-body consciousness into a more meaningful whole. To facilitate the acquisition of new movement skills, as well as creative and scholarly insights in dance, the curriculum provides a structured breadth experience at the lower department level. At the upper level students may either involve themselves in various general university electives, or they may concentrate their energies in a particular area of emphasis in dance. Although an area of emphasis is not mandatory, many third and fourth year students are interested in studying a singular aspect of dance in depth, such as performance, choreography, production/management, education, or general studies (encompassing dance history, literature and criticism).

The dance faculty is composed of a number of distinguished teachers, choreographers, and performers, each one a specialist in his or her own field. Visiting artists throughout the year make additional contributions to the program. There are several performance and choreographic opportunities for all dance students, ranging from informal workshops to fully mounted concerts both on and off campus. Students may have the opportunity of working with Improvisations Unlimited, a company in residence in the department.

Students must complete fifty-nine semester hours of dance credits. Of these, eighteen hours of modern technique and four hours of ballet technique are required. Majors may not use more than seventy-two DANC credits toward the total of 120 needed for graduation. In addition to the twenty-two technique credits required, students must distribute the remaining thirty-seven credits as follows:

DANC 208, 308, 388 — Choreography I, II, III	9
DANC 102 — Rhythmic Training	2
DANC 109 — Improvisation	2
DANC 266 — Dance Notation	3
DANC 200 — Introduction to Dance	3
DANC 171 — Movement Integration	2
DANC 305 — Principles of Teaching	3
DANC 482 — Dance History	3
DANC 370 — Kinesiology for Dancers	4
DANC 410 — Dance Production	3
DANC 484 — Philosophy of Dance	3

A grade of C or higher must be attained in all dance courses.

New, re-entering and transfer students are expected to contact the department following admission to the University for instructions regarding advising and registration procedures. Although entrance auditions are not required, some previous dance experience is highly desirable. Further information may be obtained from the Dance Department Student Handbook.

Course Code Prefix — DANC.

Decision and Information Sciences

For information consult College of Business and Management entry.

Economics (ECON)

College of Behavioral and Social Science

Undergraduate Studies: 3115H Tydings; 454-3447

Undergraduate Advisor: 3115G Tydings, 454-5443

Professor and Chair: Straszheim
Professors: Aaron, Almon, Bailey, Betancourt, Brechling, Clague, Cumberland, Harris, Hulten, Kelejian, McGuire, Mueller, Murrell, Myers* (Afro-American Studies), Oates, Olson†, Wonnacott
Associate Professors: Abraham, Bennett, Coughlin, Cropper, Haltiwanger, Knight, Meyer, Panagariya, Prucha, Schwab, Weinstein
Assistant Professors: Anderson, Evans, Haliassos, Kessides, Lyon (BBER)*, Succar, Wallis
Emeriti: Bergmann, Dillard, Gruchy, O'Connell, Ulmer

*Joint appointment with unit indicated

†Distinguished Scholar-Teacher

Economics is the study of the production, pricing, and distribution of goods and services within societies. Economist study such problems as inflation, unemployment, technical change, poverty, environmental quality and foreign trade. Economists also apply economics to such diverse areas as crime, sexual roles, health care and the elderly, discrimination, urban development, and developing nation problems.

Two characteristics of modern economics receive special attention in the department's program. Government policies have profound effects on how our economic system performs. Government expenditures, regulations and taxation either directly or indirectly affect both households and firms. Second, there is a growing interdependency among economies throughout the world. Extensive world wide markets exist in which goods and services are traded, and capital and investments move across national boundaries. Economic events in one nation are often quickly transmitted to other nations.

Economists study these phenomena through the development of systematic principles and analytic models which describe how economic agents behave and interact. These models are the subject of empirical testing, often using computers and extensive data sets.

The interests of the faculty, as reflected in the course offerings, are both theoretical and applied. As a large diverse department, the Economics Department offers courses in all of the major fields of economic study. The Department's program stresses the application of economic theory and econometrics to current problems in a large number of fields. Many courses in the department's program analyze the role of the government and public policies on the economy.

The program is designed to serve both majors and non-majors. The Department offers a wide variety of 300-level courses on particular economic issues which can be taken after one or two semesters of basic principles. These courses can be especially useful for those planning careers in law, business, or the public sector. The program for majors is designed to serve those who will seek employment immediately after college as well as those who will pursue graduate study.

Economics majors have a wide variety of career options in both the private and public sectors. These include careers in state and local government, federal and international agencies, business, finance and banking, journalism, teaching, politics and law. Many economics majors pursue graduate work in economics or another social science, law, business or public administration (public policy, health, urban and regional planning, education, and industrial relations).

Entrance Requirements. Economics is a selective major. Admission to the major occurs at the Junior level, except for a limited number of academically talented freshmen. In order to be admitted, an applicant must (1) have earned at least 56 credits, with a cumulative GPA equal to or above the minimum GPA in effect for the semester the student applies (e.g., 2.8 GPA for Fall 1988); and (b) have completed nine hours of "economics entry" courses at a satisfactory grade level. The "economics entry" courses include MATH 220 (or MATH 140), ECON 201, and ECON 203, which must be completed with a grade of C or better in each course, and a minimum GPA of 2.5 in the nine hours. Students may apply for admission at the Office of Admission.

Economics Degree Requirements. In addition to University Studies requirements, the requirement for the Economics major is as follows:

(1) Economics (and Mathematics) Courses (36 hours)

Economics majors must earn 33 credit hours in Economics, and 3 credit hours in Mathematics (MATH 220 or 140), with a grade of C or better in each course.

All majors must complete 12 hours of Core Requirements with a satisfactory grade point average (GPA). The Core Requirements include ECON 201, ECON 203, ECON 305 (formerly ECON 401) or ECON 405, and ECON 306 (formerly ECON 403) or ECON 406. A satisfactory GPA must satisfy each of the following: a grade of C or better in each course; a 2.5 GPA in the four courses comprising the Core Requirements; and a 2.5 GPA in ECON 305 (or 405) and 306 (or 406).

Students must also complete twenty-one hours in upper level Economics courses:

a) three hours in statistics, ECON 321 (formerly ECON 421) or BMGT 230 or BMGT 231 or STAT 400.
b) three hours in economic history or comparative systems; ECON 310, ECON 311, ECON 315 (formerly ECON 415) or ECON 380;

c) nine hours in courses with at least one semester of intermediate theory or economic statistics (ECON 321) as a prerequisite The following courses presently meet this prerequisite ECON 402, ECON 416, ECON 422, ECON 423, ECON 425, ECON 431, ECON 441, ECON 454, ECON 460 and ECON 470
d) six other hours in upper division Economics

(2) Additional Supporting Courses (15 hours)

Students must earn 15 hours of credit in upper division courses in addition to the 36 hours of Economics (and Mathematics) courses listed above Upper division courses include all courses with a 300 number and above. Additional mathematics courses beyond the required mathematics course (MATH 220), and computer programming courses at the 200 level and above may be counted as fulfilling the Additional Support Course Requirement. Additional economics courses may be included among the 15 hours of supporting courses.

All courses meeting this Additional Support Course requirement must be completed with a grade of C or better, and supporting courses may *not* be taken pass-fail.

Study Sequences and Plans of Study. Economics is an analytic discipline, building on a core of a more advanced principles, analytic models, and statistical techniques Students must begin with a foundation in mathematics and economic principles (ECON 201 and ECON 203). A more advanced in-depth, analytic treatment of economics is presented in intermediate theory (ECON 305 and ECON 306), which is a necessary background for study by economics majors.

The department urges that the student take ECON 201, 203 and MATH 220 as soon as possible. Honors versions of ECON 201 and ECON 203 are offered for students seeking a more rigorous analysis of principles, departmental honors candidates, and those intending to attending graduate school. Admission is granted by the Office of Undergraduate Advising or the General Honors Program.

Courses in applied areas at the 300 level may be taken at any point after ECON 203. However, majors will benefit by completing courses in intermediate theory and statistics as soon as possible Majors should take ECON 305, ECON 306, and ECON 321 or its equivalent immediately upon completion of ECON 203. While most students take ECON 305 and 306 in sequence, they may be taken concurrently. Courses at the 400 level are generally more demanding, particularly those courses with intermediate theory as a prerequisite.

Empirical research and the use of computers are becoming increasingly important in economics. All students are well advised to include as many statistics, econometrics, and computer programming courses in their curriculum as possible.

Those students planning to pursue graduate study in economics must begin to prepare themselves analytically for graduate work by focusing on theory, statistics, and mathematics in their undergraduate curriculum. These students should complete the advanced version of intermediate theory (ECON 405 and ECON 406) and the econometric sequence (ECON 422 and ECON 423). Mastery of the calculus and linear algebra is essential for success in many of the top graduate schools. Students should consider MATH 140, MATH 141, MATH 240 (or MATH 400), MATH 241 and MATH 246 as very useful preparation.

ADVISING:

The Department has a full-time academic advisor providing advising on a walk-in basis in the Office of Undergraduate Advising, Tydings 3115G **Economic Honors Program.** The Honors Program provides economics majors with the opportunity for advanced study in a seminar format, with faculty supervision of seminar papers and an honors thesis. The Honors Program is designed for students intending to attend graduate school or those seeking an in-depth study of economic theory and its application to economic problems.

The Honors Program is a twelve-hour sequence, culminating in the completion of a senior thesis Students must complete ECON 396 (Honors Workshop) and ECON 397 (Honors Thesis) in their senior year, as well as two of the following four courses: ECON 405, 406, 422 and 425. Students must complete these twelve hours with a GPA of 3.5. ECON 396 is only offered in the fall term.

To be eligible for admission, a student must have completed fifteen hours of economics with a GPA of 3.25 Interested students should meet with the Director of Undergraduate Studies at the earliest possible date to review their curriculum plans and to apply for admission to the program.

Course Code Prefix — ECON

Education Policy, Planning, and Administration (EDPA)

College of Education

Room 3112, Benjamin Building 454-5766

Professor and Chair: Warren
Professors: Andrews, Berdahl†, Berman, Carbone, Chait, Dudley, Finkelstein, McLoone, Male, Stephens,
Associate Professors: Agre, Clague, Goldman, Hopkins, Huden, Lindsay, Noll, Schmidtlein, Selden, Splaine
Assistant Professors: Heidi, Leak, Slater
Affiliate Associate Professor: Hershfield
Affiliate Assistant Professors: Edelstein, Gilmour
Adjunct Assistant Professor: McKay
Emeriti: V E Anderson, Newell, McClur

†Distinguished Scholar Teacher

Although primarily a graduate program, the Department of Education Policy, Planning and Administration offers several courses at the undergraduate level These include Foundations of Education (EDPA 301) and Utilization of Educational Media (EDPA 440). In addition, University Studies Program (distributive studies) requirements may be met by taking Education in Contemporary American Society (EDPA 201) or Historical and Philosophical Perspectives on Education (EDPA 210) University Studies Program (advanced studies) requirements may be met by taking Technology, Social Change, and Education (EDPA 401), or Future of the Human Community (EDPA 400)

Graduate degree programs are offered in five areas: Administration and Supervision (administrators in education-related agencies, school superintendents, principals, supervisors); Foundations of Education (comparative education, history, philosophy, politics, and sociology of education and technology policy), Higher and Adult Education (adult and continuing education; governance, finance, and planning; law and higher education policy; curriculum and teaching, and institutional advancement); and Education Policy (policy analysis for elementary and secondary education, postsecondary education, government agencies, and not-for-profit organizations concerned with education.

Course Code Prefix — EDPA

Electrical Engineering (ENEE)

College of Engineering

Engineering Building Room 3170, Phone 454-4171

Chair: William Destler
Associate Chairs: Christopher Davis, Facilities and Services; Fawzi Emad, Graduate Program; James Pugsley, Undergraduate Program.
Professors: Baras, Barbe, Blakenship, Chu, Davis, Davisson, DeClaris, Destler, Emad, Ephremides, Frey, Granatstein, Harger, Hochuli, Ja'Ja', Krisnaprasad, Lee, Levine, Ligomenides, Lin, Mayergoyz, Newcomb, Ott, Peckerar (part-time), Rabin, Reiser, Rhee, Striffler, Taylor, Zaki.
Associate Professors: Abed, Antonsen, Dagenais, Farvardin, Geranioitis, Gligor, Goldhar, Ho, Makowski, Nakajima, Narayan, Oruc, Pugsley, Shayman, Silio, Tits, Tretter
Assistant Professors: Fuja, Goldsman, Iliadis, Ioannou, Lawson, Menezes, Milchberg, Papamarcou, Shamma, Webb

The Electrical Engineering major is intended to prepare students to function as effective citizens and engineers in an increasingly technological world as well as in science and engineering subjects. Depth as well as breadth is required in the humanities and social sciences to understand the economic, ecologic, and human factors involved in reaching the best solution to today's problems

The basic foundation in mathematical, physical, and engineering sciences is established in the first two years of the curriculum Then a core of required Electrical Engineering courses is followed by a flexible structure of electives which allows either breadth or specialization Appropriate choices of electives can prepare an Electrical Engineering major for a career as a practicing engineer and or for graduate study

Areas stressed in the major include communication systems, computer systems, control systems, engineering electromagnetics, microelectronics, and power systems Within these areas are courses in such topics as solid state electronics, integrated circuits, lasers, communications engineering, computer design, power engineering, digital signal processing, antenna design, and many others Project courses allow undergraduate students to undertake independent study under the guidance of a faculty member in an area of mutual interest

Requirements for the Electrical Engineering major include thorough preparation in mathematics, physics, chemistry and engineering science Elective courses must include both Electrical Engineering courses and technical courses outside the department A sample program for the portion of the program following the common freshman year in Engineering is shown below

	Semester	
SOPHOMORE YEAR	I	II
University Studies '	3	3
MATH 246 Differential Equations		3
MATH 241 Analysis III	4	

PHYS 262, 263 General Physics	4	4
ENES 240 Engineering Computation	3	
ENES 221 Dynamics	3	
ENEE 204 Systems and Circuits I		3
ENEE 250 Computer Structure		3
Total Credits	17	16
JUNIOR YEAR		
MATH xxx (Elect Advanced Math [2]	3	
ENEE 322 Signal and System Theory	3	
ENEE 380 Electromagnetic Theory	3	
ENEE 381 Elect Wave Propagation		3
ENEE 304 Systems and Circuits II	3	
ENEE 305 Fundamental Laboratory	2	
ENEE 324 Engineering Probability		3
ENEE 314 Electronic Circuits		3
ENEE xxx Advanced Elective Lab [2]		2
Electives [2]		3
University Studies [1]	3	3
Total Credits	17	17
SENIOR YEAR		
Electives [2]	9	12
University Studies [1]	6	3
Total Credits	15	15

[1] See details of University Studies below

[2] The twenty-nine credits of electives must satisfy the following conditions:

(1) 3 credits must be a MATH course from the Electrical Engineering Department's approved list

(2) 2 credits must be a 400-level ENEE laboratory course.

(3) 9 credits must be from the EE Department's approved list (this may include additional MATH.)

(4) 12 credits must be 400-level ENEE courses

(5) the remaining 3 credits may be either 400-level ENEE or from the EE Department's approved list.

ENEE ADVANCED ELECTIVE LABORATORIES

ENEE 407 Microwave-Circuits Laboratory (2)
ENEE 413 Electronics Laboratory (2)
ENEE 418L Power Laboratory
ENEE 445 Computer Laboratory (2)
ENEE 473 Transducers and Electrical Machinery Laboratory (1)
ENEE 483 Electromagnetic Measurements Laboratory (2)

ADMISSION:

Admission requirements are different from those of the other engineering departments (see College of Engineering section on Entrance Requirements).

ADVISING:

Nearly all of the faculty in Electrical Engineering functions as undergraduate advisors. Departmental approval is required for registration in all upper-division courses in the major. The department's Undergraduate Office (Engineering Classroom Building (EGR) room 3188, 454-4172 is the contact point for undergraduate advising questions.

FINANCIAL ASSISTANCE:

Several corporate scholarships are administered through the department. Information and scholarship applications are available from either the Electrical Engineering Undergraduate Office (EGR-3188, phone 4172) or the College of Engineering Student Affairs Office (EGR-1131, phone 2421).

HONORS AND AWARDS:

The Electrical Engineering department annually gives a variety of academic performance and service awards. Information on criteria and eligibility is available from the department's Undergraduate Office.

Majors in Electrical Engineering participate in the Engineering Honors Program. See the College of Engineering entry in this catalog for further information.

STUDENT ORGANIZATIONS:

There is an active Student Chapter of the Institute of Electrical and Electronics Engineers (IEEE). Information and membership applications are available in the Electrical Engineering undergraduate lounge (EGR-0107).

Equally active, if not more so, is the chapter of Eta Kappa Nu, the nationwide Electrical Engineering honorary society. Information on eligibility can be obtained from the EE Undergraduate lounge (ECR-0107), from the departmental Undergraduate Office (EGR-3188), or from the College Student Affairs Office (EGR-1131).

Course code prefix: ENEE

Engineering, Bachelor of Science Degree in Engineering

College of Engineering

1137 Engineering Classroom Building, 454-2421

General Regulations for the B.S. — Engineering Degree. All undergraduate students in engineering will select their major field sponsoring department at the beginning of their second year regardless of whether they plan to proceed to a designated or an undesignated degree. A student wishing to elect the undesignated degree program may do so at any time following the completion of the sophomore year, or a minimum of fifty earned credits towards any engineering degree, and at least one semester prior to the time the student expects to receive the baccalaureate degree. As soon as the student elects to seek an undesignated baccalaureate degree in engineering, the student's curriculum planning, guidance, and counseling will be the responsibility of the "Undesignated Degree Program Advisor" in the primary field department. *At least one semester before the expected degree is to be granted, the student must file an "Application for Admission to Candidacy for the Degree of Bachelor of Science in Engineering"* with the dean's office of the College of Engineering. The candidacy form must be approved by the chair of the primary field department, the primary engineering, and the secondary field advisors and the college faculty committee on "Undesignated Degree Programs." This committee has the responsibility for implementing all approved policies pertaining to this program and reviewing and acting on the candidacy forms filed by the student.

Specific University and college academic regulations apply to this undesignated degree program in the same manner as they apply to the conventional designated degree programs. For example, the academic regulations of the University apply as stated in Chapter 5 of this catalog and the college requirement of 2.00 factor in the major field during the junior and senior years applies. For the purpose of implementation of such academic rules, the credits in the primary engineering field and the credits in the secondary field are considered to count as the "major" for such academic purposes.

Options of the 'B.S. — Engineering' Program. The "B.S. — Engineering" program is designed to serve three primary functions: (1) to prepare those students who wish to use the breadth and depth of their engineering education as a preparatory vehicle for entry into post-baccalaureate study in such fields as medicine, law, or business administration; (2) to provide the basic professional training for those students who wish to continue their engineering studies on the graduate level in one of the new interdisciplinary fields of engineering such as environmental engineering, bio-medical engineering, systems engineering, and many others; and finally (3) to educate those students who do not plan a normal professional career in designated engineering field but wish to use a broad engineering education so as to be better able to serve in one or more of the many auxiliary or management positions of engineering related industries. The program is designed to give the maximum flexibility for tailoring a program to the specific future career plans of the student. To accomplish these objectives, the program has two optional paths: an engineering option and an applied science option.

The engineering option should be particularly attractive to those student contemplating graduate study or professional employment in the interdisciplinary engineering fields, such as environmental engineering, bio-engineering, bio-medical, and systems and control engineering, or for preparatory entry into a variety of newer or interdisciplinary areas of graduate study. For example, a student contemplating graduate work in environmental engineering might combine chemical and civil engineering for his or her program; a student interested in systems and control engineering graduate work might combine electrical engineering with aerospace, chemical, or mechanical engineering.

The applied science option should be particularly attractive to those students who do not plan on professional engineering career but wish to use the rational and developmental abilities fostered by an engineering education as a means of furthering career objectives. Graduates of the applied science option may aspire to graduate work and an ultimate career in a field of science, law, medicine, business, or a variety of other attractive opportunities which build on a combination of engineering and a field of science. Entrance requirements for law and medical schools can be met readily under the format of this program. In the applied science program, any field in the University in which the student may earn a B.S. degree is an acceptable secondary science field, thus affording the student a maximum flexibility of choice for personal career planning.

Environmental Engineering. Environmental engineering is the application of basic engineering and science to problems in the environment to ensure optimum environmental quality. In recent years, humans have suffered a continually deteriorating environment. A truly professional engineer involved in the study of environmental engineering must see the total

picture and relate it to a particular mission whether this be air pollution, water quality control, environmental health, or solid and liquid waste disposal. The total picture includes urban systems design, socio-economic factors, water resource development, and land and resource conservation.

A student who selects the B.S. — Engineering degree program can specialize in environmental engineering by proper selection of primary and secondary fields from the wide selection of courses related to environmental engineering given by the various departments in the college.

Engineering-Medicine. Advanced technology is finding increasingly sophisticated applications in medical care delivery and research. Pacemakers, heart-assist pumps, kidney dialysis machines, and artificial limbs are only a few examples of the role of engineering and technology in medicine. In addition, diagnostic procedures and record-keeping have been greatly enhanced by the use of computers and electronic testing equipment. There is a growing need for physicians and researchers in life sciences, having strong backgrounds in engineering, who can effectively utilize these technologies and who can work with engineers in research and development.

The Bachelor of Science in Engineering degree provides the student an excellent opportunity to develop a professional level of competence in an engineering discipline while at the same time meeting the entrance requirements for medical school. Under the *applied science* option, the student could select any engineering field of most interest to him/her, and his or her secondary field would usually be chemistry or zoology. In addition to the medical school entrance requirements, he or she would complete twelve credits of advanced work in his or her secondary field.

Under the *engineering* option, the student would generally combine chemical engineering (as either primary or secondary field) with another engineering discipline. This option allows the student to complete more advanced work in his/her primary field of engineering than does the aplied science option. Either option can be completed in a four-year period with careful planning and scheduling.

Minimum Requirements. Listed below are the minimum requirements for the B.S. — Engineering degree with either an engineering option or an applied science option. The sixty-six semester credit hours required for the completion of the junior and senior years are superimposed upon the freshman and sophomore curriculum of the chosen primary field of engineering. The student, thus, does not make a decision whether to take the designated or the undesignated degree in an engineering field until the beginning of the junior year. In fact, the student can probably delay the decision until the spring term of the junior year with little or no sacrifice, thus affording the student ample time for decision. Either program may be taken on the regular four-year format or under the Maryland Plan for Cooperative Engineering Education.

Junior-Senior Requirements for the Degree of B.S. — Engineering

	Semester Hours (Engineering Option)	*Semester Hours (Applied Science Option)*
Requirements		
Univ. Studies Prog. Requirements	15	15
Mathematics Physical Sci. Requirements[3]	3	3
Engineering Sciences[1,3]	6[2]	6
Primary Field[4]	24 (Engr.)	18 (Engr.)
Secondary Field	12 (Engr.)	12 (Sci.)
Approved Electives[3,6]	6 (Tech.)	9 or 10
Sr. Research/Project[5]		3 or 2
Total	66	66

Engineering fields of concentration available under the B.B. — Engineering program as primary field within either the engineering option or the applied science option are: aerospace engineering, engineering materials, agricultural engineering, fire protection engineering, chemical engineering, mechanical engineering, civil engineering, nuclear engineering, and electircal engineering. All engineering fields of concentration may be used as a secondary field within the engineering option.

[1] Engineering sciences, for the purpose of this degree, are those courses in the College of Engineering prefixed by ENES, or, are in an engineering field not the primary or secondary field of engineering concentration.

[2] Students following the engineering option may use up to six semester hours of coursework at the 100 or 200 course number level in the primary or the secondary field of engineering concentration as an engineering science.

[3] A minimum of fifty percent of the coursework in the mathematics, physical sciences, engineering-science and elective areas must be at the 300 or 400 course number level.

[4] All of the courses used to fulfill the fields of concentration requirements (thirty-six semester hours in the engineering option and thirty in the applied science option) must be at the 300 course number level or above.

[5] For the applied science option each student is required — unless specifically excused, and if excused, fifteen semester hours of approved electives will be required — to satisfactorily complete a senior level project or research assignment relating the engineering and science fields of concentration.

[6] In the engineering option, the six semester hours of electives must be technical (math, physical sciences, or engineering sciences, but may not be in the primary or secondary fields of concentration). In the applied science option, the approved electives should be selected to strengthen the student's program consistent with career objectives. Courses in the primary or secondary fields of concentration may be used to satisfy the approved electives requirement.

English Language and Literature (ENGL)

College of Arts and Humanities

1123 Taliaferro Hall, 454-2511

Undergraduate Advisors: 1122 Taliaferro, 454-2521
Freshman English Office: 0139 Taliaferro, 454-4160
Junior Writing Program: 2117 Taliaferro, 454-4163

Professor and Chair: David
Professors: Bode (Emeritus), Bryer, Cross, Damrosch, David, Freedman, Holton, Hovey (Emeritus), Howard, Isaacs, Jellema, Kornblatt, Lawson, Lutwack (Emeritus), M. Miller, Mish (Emeritus), Murphy (Emeritus), Myers (Emeritus), Panichas, W. Peterson, Plumly, Russell, Salamanca, Schoenbaum+, Trousdale, Vitzthum, Whittemore (Emeritus), Winton
Associate Professors: Auchard, Barry, Beauchamp, Bennett, Birdsall, Caramello, Carretta, Cate, Coletti, Coleman, Coogan, Cooper, Donawerth, Fahnestock, Flieger, Fraistat, Fry, D. Hamilton, G. Hamilton, Hammond, Handelman, Herman, Joyce, Kauffman, Kleine, Leinwand, Loizeaux, Mack, Marcuse, Norman, Pearson, C. Peterson, Robinson, Weber (Emeritus), Wilson, Wyatt
Assistant Professors: Auerbach, Cartwright, Collier, Dobin, Dunn, Grant-Davie, James, Leonardi, Levine, Moser, Rutherford, Ryan (Visiting), Smith, Van Egmond.
Instructors: Buhlig, Demaree, Logan, MacBain, J. Miller, Scheltema, Shapiro, Terchek, Townsend

+ Distinguished Scholar-Teacher

The English major requires 39 credits in English beyond the two required University writing courses. This relatively small number reflects the department's desire that students choose wisely a variety of electives to acquire a broad and liberal education. An English major is good professional preparation for a career in the law, government, journalism, business communication, teaching, or any field that requires strong analytical, communication, and human skills. Students may also want to consider a double major or the Liberal Arts and Business program (call ext. 6794) to prepare themselves for a profession.

A student may pursue an English major with an emphasis in 1) English and American Literature, 2) Comparative Literature, 3) English Language and Linguistics, or 4) English Education. Basic requirements for the most commonly selected option, English and American Literature, are:

1) The department's core courses (restricted to English and English Education majors): English 310 (Medieval and Renaissance British Literature), 311 (Baroque and Augustan British Literature), 312 (Romantic to Modern British Literature), and 313 (American Literature)
2) Shakespeare: English 205 or 304 or 403 or 404
3) One 300-400 level course — other than Shakespeare — in English or American literature before 1800
4) A senior seminar: English 399
5) 18 elective credits in English
6) 12 supporting credits in the departments of modern languages, Classical Languages, Philosophy, History, or Comparative Literature

Only two 200-level courses may be counted toward the major. No course with a grade less than C may be used to satisfy major or supporting area requirements. Full details of this option, and of the other three options, should be obtained by consulting the English Department's advisors (Room A1122, ext. 2521). For information about English Education see the entry for the Department of Curriculum and Instruction.

Honors: The English Department offers an extensive Honors Program, primarily for majors but open to others with the approval of the Departmental Honors Committee. Interested students should ask for detailed information from an English Department advisor as early as possible in their college careers.

The Writing Center in room 1126 Taliaferro Hall provides free tutorial assistance daily to students enrolled in English courses. English 101 students generally work with student tutors. English 391, 2, 3, 4, 5 students work with tutors who are retired professionals. In addition to helping students with

writing assignments, the Center prepares 101 students for the English Proficiency Exam. Appointments are recommended, but walk-ins are welcome based on availability of tutors. Call 454-4011.

Course Code Prefix — ENGL

Entomology (ENTM)

College of Life Sciences

1302 Symons Hall, 454-3843

Professor and Chair: Steinhauer
Professors: Barbosa, Bickley (Emeritus), Bottrell, Davidson, Denno, Harrison (Emeritus), Jones (Emeritus), Menzer, Messersmith, Wood
Associate Professors: Armstrong, Bissell (Emeritus), Dively, Hellman, Linduska, Ma, Mitter, Nelson, Raupp, Regier, Reicheiderfer, Scott
Associate Research Scientists: Mickevich
Assistant Professor: Lamp

This curriculum prepares students for various types of entomological positions or for graduate work in any of the specialized areas of entomology. Professional entomologists are engaged in fundamental and applied research in university, government, and private laboratories; regulatory and control activities with Federal and State agencies; commercial pest control and pest management services; sales and development programs with chemical companies, and other commercial organizations; consulting, extension work; and teaching.

Students should work closely with their advisors in choosing electives. The curriculum is designed to allow majors intending to go to graduate school to broaden their preparation. Those intending to begin a career after the baccalaureate would be advised to concentrate on a more defined curriculum.

College of Life Science Core Requirements	38-40
University Studies Program Requirements	40
Departmental Requirements	
ENTM 205 Principles of Entomology	4
ENTM 398 General Colloquium in Entomology	1
ENTM 399 Special Problems	1-2
ENTM 423 Insect Comparative Morphology	4
ENTM 424 Insect Diversity and Classification	4
ENTM 432 Insect Physiology	4
ENTM 451** Insect Pests of Agri. Crops	4
Total departmental requirements	22-23
Supporting Courses	
MICB 200* General Microbiology	4
ZOOL 213 or	
BOTN 414 Plant Genetics	3
ZOOL 212 Ecology, Evolution, & Behavior	4
BIOM 401 Agricultural Biometrics	3
or	
STAT 464 Introduction to Biostatistics	3
Total supporting courses	14-15
Two (2) of the following six (6) courses:	
BCHM 461 Biochemistry 1	3
BOTN 212 Plant Taxonomy	3
BOTN 221 Diseases of Plants	4
BOTN 441 Plant Physiology	4
ZOOL 411 Cell Biology	4
ZOOL 422 Vertebrate Physiology	4
Total	6-8
Electives	7-8
	127-134

* May satisfy departmental requirements and/or a University Studies requirement

** In addition to ENTM 451, students pursuing an applied program are encouraged to take ENTM 351 as an elective.

*** Students who intend to pursue a career in applied entomology should elect the following courses: BOTN 212, BOTN 221, AGRI 401, ZOOL 422, BOTN 441, AGRO 453 (Weed Control), AGRO 423 (Soil and Water Pollution). These seven courses are prerequisite to the M.S. program in pest management.

A "C" average is necessary for all ENTM and supporting courses.

Course Code Prefix — ENTM.

Family and Community Development (FMCD)

College of Human Ecology

1204A Marie Mount Hall, 454-6424

Professor and Chair: Billingsley
Professors: Gaylin, Hanna, Koblinsky
Associate Professors: Anderson, Epstein, Myricks
Assistant Professors: Churaman, Leslie, Randolph
Lecturer: Werlinich
Instructors: Millstein, Zeiger

The Department of Family and Community Development is devoted to describing, explaining, and improving the quality of life by means of research, education, community outreach, and public service. The approach is holistic, emphasizing human ecology. The curriculum places special emphasis upon the family and the community as mediating structures in determining life quality. The jobs for which the curriculum is designed include counseling, program management, research, advocacy, and service delivery.

Graduates of the department obtain positions in human service agencies, consulting firms, voluntary organizations, and Federal, State, and local governments. Their specific jobs may be in area agencies or organizations such as the Federal Drug Administration, Planned Parenthood, youth services, family services, or senior citizens programs.

There are three interrelated majors offered by the department:

I. *Family Studies.* This course of study stresses a working knowledge of the growth of individuals throughout the life span with particular emphasis on intergenerational aspects of family living. It examines the pluralistic family forms and life styles within our post-technological complex society and the development of the individual within the family within the community.

II. *Management and Consumer Studies.* Within this major are two specializations: (a) program management and (b) consumer affairs. The focus is upon the efficient and effective utilization of organizational and other community resources.

III. *Community Studies.* This major stresses community development, community organization, and advocacy and their relevance to families. In general there is an emphasis upon the processes and methods for social change, as well as the individuals, organizations or groups which act as agents of change.

Each of these courses of study includes a set of major subject courses offered primarily within the department plus a sequence of supporting area courses which may be taken outside the department or in an interdepartmental combination. Examples of supporting areas include the aging, the disabled, human service, children's issues, management, health, public administration, rehabilitation, and urban affairs. Students are strongly encouraged to consult with an appropriate advisor in developing their course of study.

There are parallel requirements for each of the department's majors (family studies, management and consumer studies and community studies). Each major requires a fifteen-credit thematic set of supportive area courses. To graduate, students must also meet the requirements of the campus (e.g., those specified in the University Studies Program) and of the College of Human Ecology.

GRADES: All students are required to earn a grade of C or better in all courses applied toward satisfaction of the major. This includes all required courses with the FMCD prefix as well as the courses used for the supporting area.

COLLEGE CORE - required of all majors
SOCY 100 Introduction to Sociology (3)
PSYC 100 Introduction to Psychology (3)
ECON 201 Principles of Economics I (3) and
ECON 203 Principles of Economics II (3) or
ECON 205 Fundamentals of Economics (3)
SPCH 100 Basic Principles of Speech Communications (3)
or 107 Technical Speech Communication (3)
or 125 Introduction to Interpersonal Communication (3)

and two courses in Human Ecology, one each in the Departments of Human Nutrition and Food Systems and Textiles and Consumer Economics (6).

Family Studies Major
(a) Major subject area: A grade of C or better is required in these courses.
FMCD 200 Pre-Professional Seminar (1)
FMCD 202 Methods for Family, Community and Management Studies (3)
FMCD 250 Decision Making in Families and Communities (3)

FMCD 330 Family Patterns (3)
FMCD 348 Practicum in Family and Community Development (6-12)
FMCD 349 Analysis of Practicum (1-2)

(b) And a minimum of fifteen credits selected from the following courses and completed with a grade of C or better.
FMCD 105 The Individual in the Family (3)
FMCD 260 Interpersonal Life Styles (3)
FMCD 332 The Child in the Family (3)
FMCD 370 Interpersonal Communication Processes (3)
FMCD 381 Poverty and Affluence Among Families and Communities (3)
FMCD 430 Gender Role Development in the Family (3)
FMCD 431 Family Crisis and Intervention (3)
FMCD 432 Intergenerational Aspects of Family Living (3)
FMCD 441 Personal and Family Finance (3)
FMCD 447 The Disabled Person in the Family and Community (3)
FMCD 460 Violence in the Family (3)
FMCD 485 Introduction to Family Counseling (3)
FMCD 487 Legal Aspects of Family Problems (3)
FMCD 497 The Child and the Law (3)
AND SPECIAL TOPICS COURSES APPROVED FOR THIS MAJOR

(c) Eighteen credits in supportive area consisting of a common focus or theme, e.g., aging and the aged, mental health, sociology, psychology. A grade of C or better is required for all courses used as the supportive area.

(d) College Core Courses (see above).

Management and Consumer Studies
(a) Major subject courses: A grade of C or better is required in these courses.
FMCD 200 Pre-Professional Seminar (1)
FMCD 202 Methods for Family, Community and Management Studies (3)
FMCD 250 Decision Making in Families and Communities (3)
FMCD 348 Practicum in Family and Community Development (6-12)
FMCD 349 Analysis of Practicum (1-2)
FMCD 444 Human and Community Program Management (3)

(b) And a minimum of fifteen credits selected from the following courses and completed with a grade of C or better.
FMCD 280 Families and Communities in the Ecosystem (3)
FMCD 381 Poverty and Affluence Among Families and Communities (3)
FMCD 443 Consumer Problems (3)
FMCD 445 Family and Household Management (3)
FMCD 447 The Disabled Person in the Family and Community (3)
FMCD 453 Family and Community Advocacy (3)

(c) Eighteen credits in a supportive area constituting common focus or theme, e.g., personnel and labor relations, or public administration. A grade of C or better is required for all courses used as the supportive area.

(d) College Core Courses (see above).

Community Studies Major
(a) Major subject courses: A grade of C or better is required in these courses.
FMCD 200 Pre-Professional Seminar (1)
FMCD 201 Concepts in Community Development (3)
FMCD 202 Methods for Family, Community and Management Studies (3)
FMCD 250 Decision Making in Families and Communities (3)
FMCD 348 Practicum in Family and Community Development (6-12)
FMCD 349 Analysis of Practicum (1-2)

(b) And a minimum of fifteen credits selected from the following courses and completed with a grade of C or better.
FMCD 280 Families and Communities in the Ecosystem (3)
FMCD 381 Poverty and Affluence Among Families and Communities (3)
FMCD 444 Human and Community Program Management (3)
FMCD 447 The Disabled Person in the Family and Community (3)
FMCD 453 Family and Community Advocacy (3)
FMCD 483 Family and Community Service Systems (3)

(c) Eighteen credits in a supportive area constituting common focus or theme, e.g., community psychology, international development, or urban studies. A grade of C or better is required for all courses used as the supportive area.

(d) College Core Courses (see above).

Finance

For information, consult College of Business and Management entry

Fire Protection Engineering (ENFP)

College of Engineering

0147 Engineering Classroom Building, 454-2424

Professor and Chair: Bryan
Assistant Professor: Mowrer
Lecturer: Milke
Lecturers (part-time) DiNenno, Quitiere, Walton

MAJOR: Fire Protection Engineering

The fire protection engineering major is concerned with the scientific and technical problems of preventing loss of life and property from fire, explosion, and related hazards, and of evaluating and eliminating hazardous conditions.

The fundamental principles of fire protection engineering are relatively well-defined and the application of these principles to a modern industrialized society has become a specialized activity. Control of the hazards in manufacturing processes calls for an understanding not only of measures for the protection but of the processes themselves. Often the most effective solution to the problem of safeguarding a hazardous operation lies in the modification of special extinguishing equipment. The fire protection engineer must be prepared to decide in any given case what is the best and most economical solution of the fire prevention problem. His or her recommendations are often based not only on sound principles of fire protection but on a thorough understanding of the special problems of the individual property.

Modern fire protection utilizes a wide variety of mechanical and electrical equipment which the student must understand in principle before he or she can apply them to special problems. The fire protection curriculum emphasizes the scientific, technical, and humanitarian aspects of fire protection engineering and the development of the individual student.

The problems and challenges which confront the fire protection engineer include the reduction and control of fire hazards due to processes subject to fire or explosion in respect to design, installation and handling, involving both physical and human factors; the use of buildings and transportation facilities to restrict the spread of fire and to facilitate the escape of occupants in case of fire; the design, installation and maintenance of fire detection and extinguishing devices and systems, and the organization and education of persons for fire prevention and fire protection.

REQUIREMENTS FOR MAJOR	*Semester*	
Sophomore Year	*I*	*II*
University Studies Program Requirements	3	3
MATH 240 — Linear Algebra or		
MATH 241 — Calculus	4	
MATH 246 — Differential Equations for Scientists & Engineers		3
PHYS 262, 263 — General Physics	4	4
ENES 221 — Dynamics	3	
ENES 220 — Mechanics of Materials		3
ENFP 251 — Introduction to Fire Protection Engineering	3	
ENFP 290 — Fire Protection Fluids		3
Total	17	16
Junior Year		
University Studies Program Requirements	3	3
CMSC 110 — Intro to Fortran Programming (4) or		
ENES 240 — Engineering Computation (3)	3-4	
ENME 320 — Thermodynamics or		
ENCH 300 — Chemical Process Thermodynamics		3
ENCE 300 — Fundamentals of Engineering Materials or		
ENME 310 — Mechanics of Deformable Solids		3
ENCE 330 — Fluid Mechanics	3	
ENFP 310 — Fire Protection Systems Design I	3	
ENFP 315 — Fire Protection Systems Design II		3
ENFP 320 — Pyrometrics of Materials	3	
ENFP 312 — Heat Transfer in Fire Protection		3
Approved Electives	2	2
Total	17-18	17
Senior Year		
University Studies Program Requirements	6	6
ENNU 310 — Environmental Aspects of Nuclear Engineering or		
ENEE 300 — Principles of Electrical Engineering	3	
ENFP 421 — Functional and Life Safety Analysis	3	

ENFP 415 — Fire Dynamics	3	
ENFP 411 — Fire Protection Hazard Analysis		3
ENFP 416 — Problem Synthesis and Design		3
Technical Electives*	3	3
Total	15	15

Minimum Degree Credits — 120 credits and fulfillment of all department, college, and University requirements

*Three credits of technical electives must be in ENFP

Admission:
Admission requirements are identical to those set by the College of Engineering (see College of Engineering section on Entrance Requirements)

Advising:
Mandatory advising by Department Faculty is required of all students every semester. Students schedule their advising appointments in the Departmental Office, room 0147 Engineering Classroom Building or by phone 454-2424

Fieldwork and Internship Opportunities:
Part-time and summer professional experience opportunities and paid internship information is available in the Departmental Office, room 0147 Engineering Classroom Building Coordinator: J.L. Bryan, Phone 454-2424.

Financial Assistance:
Scholarships and grants are available to students in the Department from organizational and corporate sponsors. Information is available on eligibility, financial terms and retention criteria in the Departmental Office, room 0147 Engineering Classroom Building.

Honors and Awards:
Academic achievement awards are sponsored by the Department, and the student professional-honor societies. These awards are presented at the annual College of Engineering Honors Convocation. Eligibility criteria for these awards are available in the Departmental Office, room 0147 Engineering Classroom Building. Qualified students in the Department are eligible for participation in the College of Engineering honors program.

Student Organizations:
The Departmental honor society Salamander is provided for academically eligible junior and senior students. The University of Maryland student chapter of the Society of Fire Protection Engineers is the professional society for all interested students in the Department. Information on both organizations may be obtained from current members in the student lounge, room 1123 Engineering Laboratory Building, phone 454-2686.

Course Code Prefix: ENFP.

Food Science Program (FDSC)

College of Agriculture

1122A Holzapfel Hall, 454-2829

Professor and Coordinator: Wiley
Professors; Bean, Cook, Johnson, Heath, Quebedeaux, Solomos, Vijay, Westhoff, Wheaton
Professors Emeritus: Keeney, King, Mattick, Twigg
Associate Professors: Chai, Doerr, Schlimme, Stewart
Assistant Professors: Choi, Kantor, Marshall
Lecturers: Bednarczyk, Elehwany, Hsieh, Pohland, Solomon, Weeks

The Food Science Major:
Food Science is concerned with the application of the fundamental principles of the physical, biological and behavioral sciences and engineering to better understand the complex and heterogeneous materials recognized as food The contemporary food industry is highly dependent on this accumulating multidisciplinary body of knowledge and especially on the people who are educated to apply it — the food scientists or the food technologists, terms that are used interchangeable.

Courses include the general areas of manufacture, distribution, preparation and utilization of foods to provide a better and more plentiful food supply for humankind.

Specialization is offered in the areas of flavor and food chemistry, food microbiology including fermentation, food processing technology including freezing, thermal and aseptic processing, quality assurance, and the food commodity areas of fruits and vegetables, milk and dairy products, poultry and poultry products, red meats and seafood products

Opportunities for careers in food science are available in industry, trade associations, government and universities. Specific positions for food scientists include food product development, production management, quality assurance, technical sales and service, ingredient management, food processing, research and teaching

Requirements for Major.	Credit Hours
University Studies Program Requirements*	41
College Requirements	
ENGL 101 — Introduction to Writing	3
CHEM 103 — General Chemistry I	4
MICB 200 — General Microbiology	4
MATH 110 or 115 —	3
Curriculum Requirements	
ENGL 393 — Technical Writing	3
ENAG 414 — Mechanics of Food Processing	4
CHEM 104 or CHEM 233	4
CHEM 113 — General Chemistry II	4
FDSC 111 — Contemporary Food Industry and Consumerism	3
FDSC 398 — Seminar	1
FDSC 412, 413 — Principles of Food Processing I, II	3,3
FDSC 421 — Food Chemistry	3
FDSC 422 — Food Product Research and Development	3
FDSC 423 — Food Chemistry Laboratory	2
FDSC 430 — Food Microbiology	2
FDSC 431 — Food Quality Control	4
FDSC 434 — Food Microbiology Laboratory	2
FDSC 442, 452, 461, 471, 482 — Horticulture, Dairy, Poultry, Meat and Seafood Products Processing (2 required)	3,3
NUTR 100 — Elements of Nutrition	3
BCHM 261 — Elements of Biochemistry	3
PHYS 121 — Fundamentals of Physics	4
Electives	25

*includes 17 required credits listed below.

Advising: Advisement of undergraduate students is required. The Food Science Undergraduate advisor is Dr. D.V Schlimme, Room 1122B Holzapfel hall, 454-6526

Fieldwork and Internship Opportunities are available with such organizations as McCormick and Co., National Food Processors Association, Fairfield Farm Kitchens, the Food and Drug Administration, Highs Ice Cream Corp., and Strasburger and Siegel, Inc. For information, contact Dr. D.V. Schlimme, Room 1122B Holzapfel Hall, 454-6526.

Honors and Awards: The Food Science department offers opportunities for scholarships and achievement awards such as the Institute of Food Technologists and Washington, D.C. Section IFT, Maryland and D.C. Dairy Technology, and C.W. England scholarships, and the Forbes Chocolate Leadership Award.

Student Organization: Dairy Products Judging Team.

Course Code Prefix: FDSC

French and Italian Languages and Literatures (FREN)

College of Arts and Humanities

3106C Jiminez Hall, 454-4303/4

Associate Professor and Chair: Tarica
Professors: MacBain, Therrien
Associate Professors: Black, Demaitre, Fink, Hage, Joseph, C. Russell, Verdaguer
Assistant Professors: Ancekewicz, Brami, Flavo, Mossman
Lecturers: Barrabini, Bondurant, C.P. Russell
Instructors: Amodeo
Affiliate Lecturer: Jacoby
Emeritus: Bingham

French is one of the world's great languages of culture, providing access to an outstanding body of literature and criticism, studies in the arts, the humanities, the social and natural sciences, and career opportunities in commerce, foreign affairs, and the academic world. The department seeks to provide an atmosphere conducive to a cultural awareness and intellectual growth. It hosts an active student club and a chapter of a national honor society. For further information telephone 454-4303.

The undergraduate major in French consists of thirty-six hours of French courses above FREN 203. Two options, both having the same core, lead to the Bachelor of Arts degree: (1) French language and literature and (2) French language and culture. No grade lower than C may be used toward the major Students intending to apply for teacher certification should consult the Director of Undergraduate Advising as early as possible for proper planning

French Language and Literature Option. Required core courses: FREN 204, 250, 301, 351, 352, and one of 211, 311, 312, 404. Specialization: either 401 or 405, either 302 or 402, four additional 400-level courses (excluding 404, 475, 478, 479), of which three must be in literature. Additional requirements outside French: twelve credits in supporting courses chosen from a list approved by the department, or at least twelve credits (six credits at 200 level and six credits at 300-400 level) in one specific area, representing a coordinated plan of study.

French Language and Culture Option: Required core courses: FREN 204, 250, 301, 351, 352, and one of 211, 311, 312, 404. Specialization: one of 302, 401, 402, either 471, or 472; 473; three additional 400-level courses (excluding 404, 475, 478, 479). Additional requirements outside French: twelve credits in supporting courses chosen from a list approved by the department; or at least twelve credits (six credits at 200-level and six credits at 300-400 level) in one specific area, representing a coordinated plan of study.

Honors. The department offers an honors program in French for students of superior ability. Honors students must take a total of thirty-six credits in French, including 494H (preparation for the final comprehensive examination) and 495H (Honors Thesis). For further information see the Director of the French Honors Program.

Italian Language. while the department does not yet offer a major in Italian, it does offer a large selection of language, literature and civilization courses at all levels. Students may follow a course of study which prepares them in Italian for all further academic or professional needs. Italian is also one of the three component languages in the Romance Languages major described below.

Course Code Prefix — FREN, ITAL.

Geography (GEOG)

College of Behavioral and Social Sciences

1113 Lefrak Hall, 454-2241

Chair: Corey
Professors: Corey, Fonaroff, Harper
Associate Professors: Brodsky, Christian* (Urban Studies), Cirrincione* (Curriculum and Instruction), Groves, Kearney, Leatherman, Mitchell, Thompson, Wiedel
Assistant Professors: Goward, Lai, Marcus
Part-time Lecturers: Broome, Chaves, Deshler, Eney, Frieswyk
Affiliate Faculty: Corsi* (Business and Management)

*Joint appointment with unit indicated.

The Geography Major. The Department of Geography offers programs of study leading to the Bachelor of Science degree. Many students find that the multiple perspectives of geography form an excellent base for a liberal arts education. The abilities to write clearly and to synthesize information and concepts are valued highly in geographical education and practice. Students of geography must master substantive knowledge either in the physical/natural sciences or in the behavioral/social sciences in addition to methodological knowledge. International interests are best pursued with complementary study in foreign languages and area studies.

The central question in geographical study is "where?" Geographers research locational questions of the natural environment, of social and economic systems, and of past human activity on the land. Students of geography must master a variety of techniques that are useful in locational analysis, including computer applications and mapping, map making or cartography, air-photo interpretation and remote sensing, field observation, statistical analysis, and mathematical modelling.

Increasingly, geographers apply their combined methodological and substantive knowledge towards the solution of society's problems. Some graduates find geography to be an excellent background for careers in defense and intelligence, journalism, law, travel and tourism, the nonprofit sector, and business and management. Most professional career positions in geography require graduate training. Many geographers take positions in scientific research, planning, management and policy analysis for both government and private agencies.

Requirements for Major Including Program Options: Within any of the specializations available in the geography major program it is possible for students to adjust their programs to fit their individual interests. The geography major totals thirty-seven semester hours. In addition to the thirty-seven semester hours, the geography major is required to take an additional fifteen semester hours of supporting coursework outside of the department. The hours can be either in one department of in an area of concentration. An area of concentration requires that a written program of courses be reviewed and placed on file by the department advisor. See Professor Cirrincione, 1125 LeFrak Hall, telephone 454-2244. Supporting courses generally are related to the area of specialty in geography. The pass-fail option is not applicable to major or supporting courses. A minimum grade of C in each course is required for major and supporting courses.

The required courses for geography majors are as follows:

	Semester Credit Hours
Geography Core (GEOG 201, 202, 203, 211, 305, 310)	16
An additional techniques course (selected from 370, 372, 373, 380)	3
A regional course	3
Elective systematic courses	15
Total	37

The Geography Core - The following six courses form the minimum essential base on which advanced work in geography can be built.

GEOG 201 — Geography of Environmental Systems	3
GEOG 202 — The World in Cultural Perspective	3
GEOG 203 — Economic Geography	3
GEOG 211 — Geography of Environmental Systems Laboratory	1
GEOG 305 — Quantitative Methods in Geography	3
GEOG 310 — Research and Writing in Geography	3

The four lower division courses are to be completed prior to GEOG 310 and all other upper division courses. GEOG 201, 202, and 203 may be taken in any order and a student may register for more than one in any semester. GEOG 211 may be taken concurrent with, or after taking GEOG 201. GEOG 305 is prerequisite to GEOG 310. GEOG 310 is designed specifically as a preparation to upper level work and should be taken by the end of the junior year. Upon consultation with a department advisor, a reasonable load of other upper level work in geography may be taken concurrently with GEOG 310. Completion of GEOG 310 satisfies for geography majors only the upper level English composition requirement.

The techniques requirement may be fulfilled by taking one of the following: GEOG 370 — Cartographic Principles, GEOG 372 — Remote Sensing, GEOG 373 — Computer Mapping, and GEOG 380 — Local Field Course.

Suggested Program of Study for Geography

	Semester Credit Hours
Freshman and Sophomore Years	
GEOG 100, 110, 120, 130, 140, 150, 160, 170, 171 (1) — Introductions to Geography (Does not count toward geography majors)	3+1
GEOG 201 — Geography of Environmental Systems	3
GEOG 202 — The World in Cultural Perspective	3
GEOG 203 — Economic Geography	3
GEOG 211 — Geography of Environmental Systems Laboratory	1
General University, or University Studies Program Requirements and/or electives	47
	60
Junior Year	
GEOG 305 — Quantitative Methods in Geography	3
GEOG 310 — Research and Writing in Geography	3
GEOG — A regional geography course	3
GEOG — Techniques (choice)	3
GEOG — Elective	3
General University, or University Studies Program Requirements and/or electives	15
	30
Senior Year	
GEOG — Courses to complete major	12
Electives	18
	30
Total	120

Introduction to Geography. The 100-level geography courses are general-education courses for persons who have had no previous contact with the discipline in high school or for persons planning to take only one course in geography. They provide general overviews of the field or in one of its major topics. Credit for these courses is not applied to the major.

Areas of Specialization. Although the major program is flexible and can be designed to fit any individual student's own interest, several specializations attract numbers of students. They are:

Urban Geography and Regional Development-Provides preparation for careers in planning, development, research and teaching. Majors electing this specialty take departmental courses in urban geography, location theory and spatial analysis, transportation, and economic geography among others, and supporting courses outside the department in urban sociology, urban economics, urban transportation, housing and design, family and community development, architecture, and in urban studies and planning.

Environmental Analysis, Resources Management and Physical Geography-For students with special interests in the natural environment and its interaction with humans. This specialization consists of departmental

courses in geomorphology, climatology, biogeography, and energy, pollution, and water resources, and of supporting courses in geology, soils, meteorology, civil engineering, hydrology, and botany

Computer Mapping, Cartography and Spatial Analysis-Prepares students for careers in map design, compilation, and reproduction. The department offers various courses in thematic mapping, cartographic history and theory, map evaluation, map, photo, and image interpretation, computer-assisted cartography, spatial statistics, and geographic information systems. Students concentrating in cartography are not required to take GEOG 305 and are limited to nine hours of upper level systematic geography courses. Students must complete fifteen hours in cartography/geographic techniques. Supporting area courses must be taken from a list provided by the department. All math programs should be approved by a departmental advisor.

The required courses of the Cartography concentration are as follows:

	Semester Credit Hours
Geography Core (GEOG 201, 202, 203, 211, 310)	13
Elective systematic geography courses	9
Cartography/Geographic technique courses	15
Total	37

Human and Historical Cultural Geography - Of interest to students particularly concerned with the geographic aspects of population, politics, and other social and cultural phenomena, and with historical and locational processes in cities and in colonial settlement. In addition to departmental course offerings, this specialization necessitates study in sociology, anthropology, government and politics, history, and economics.

For further information on any of these areas of specialization, students should contact a departmental advisor.

Geography Minor and Secondary Education Geography Specialization. Secondary Education majors with a concentration in geography are required to take twenty-seven hours in the content field, GEOG 201, 202, 203, 311, 305, and 490, or another upper-level course reflecting this interest. The remaining twelve hours of the program consist of three hours of regional geography and nine hours of upper-division systematic courses. For majors in elementary education and others needing a geography course for teaching certification, GEOG 100 is the required course.

Geography minors should take at least GEOG 201, 202, and 203 in the geography core and 310 is recommended. As with the major, these courses should be taken before any other geography courses.

Internship Opportunities. The department offers a one-semester internship program for undergraduates (GEOG 384 and 385). The goal of the program is to enhance the intellectual growth and the career opportunities of undergraduates. The internship provides students an opportunity to expand their understanding of the field by linking the theoretical aspects of geography acquired in the classroom to the applied aspects operating in a practice situation. The internship program is open only to geography juniors and seniors. All interns must have completed the following prerequisites: GEOG 201, 202, 203, 211, 305, and 310. An application form from the undergraduate geography advisor must be submitted one semester before the internship is desired. See Professor Cirrincione, 1125 LeFrak Hall, telephone 454-2244.

Honors. For information on the geography honors program, contact the undergraduate advisor.

Student Organizations: Gamma Theta Upsilon, the goegraphy undergraduate organization, operates a program of student-sponsored talks and field trips. Information may be obtained from Professor Marcus, 1171 Lefrak Hall, 454-4862

Course Code Prefix — GEOG.

Geology (GEOL)

College of Computer, Mathematical and Physical Sciences

1115 Geology Building, 454-3548

Professor and Chair: Chang
Associate Professors: Candela, Ridky, Segovia, Siegrist, Stifel, Weidner, Wylie
Assistant Professor: McLellan

The Geology Major: Geology is the basic science of the earth. In its broadest sense, geology concerns itself with planetary formation and modification with emphasis on the study of the planet earth. Geology concerns itself with the application of geological principles and with application of physics, chemistry, biology, and mathematics to the understanding of our planet. This study directs its attention to the earth's internal and external structure, materials, chemical and physical processes and its physical and biological history.

Geology studies thus encompass understanding the development of life from the fossil record, the mechanics of crustal movement, and earthquake production, the evolution of the oceans and their interaction with land, the origin and emplacement of mineral and fuel resources and the determination of the human species' impact on the geological environment.

Geological scientists find employment in government, industrial, and academic establishments. In general, graduate training is expected for advancement to the most rewarding positions. Although some sectors of the geological industry, such as the petroleum industry, are subject to cyclical employment conditions, most sectors are enjoying a strong employment outlook. Strong areas of employment include: mineral resource consumption, land management, hydrology and ground water, remote sensing, geophysics and virtually all areas of environmental studies. At this time, students with the Bachelor of Science, particularly those with supportive training in statistics and computer science, can find satisfactory employment.

The Geology program includes a broad range of undergraduate courses to accommodate both geology majors and students interested in selected aspects of the science of the earth. Opportunities exist for undergraduates to work on research projects, individually with faculty members.

Requirements for Major Including Program Options: The geology curriculum is designed to meet the requirements of industry, graduate school and government. However, students may select, at their option, geology electives that are designed for a particular interest, rather than for the broad needs of a professional career. Five areas of concentration are suggested: Advanced Study for Graduate School, Energy and Mineral Resources, Minerals and Materials, Environmental and Engineering Geology, and Earth Science Education. These concentrations are used by the undergraduate advisors to help students plan career directions which fit their interests, abilities, and the present and predicted job market.

All required geology courses must be completed with a grade of C or better. An average of C is required in the supporting courses. Courses required for the B.S. in geology are listed below.

	Semester Credit Hour
University Studies Program Requirements*	30
DEPARTMENTAL REQUIREMENTS	
GEOL 101 — Physical Geology (or GEOL 100 + GEOL 110)	4
GEOL 102 — Historical Geology	4
GEOL 322 — Mineralogy	4
GEOL 331 — Invertebrate Paleontology	4
GEOL 340 — Geomorphology	4
GEOL 341 — Structural Geology	4
GEOL 342 — Sedimentation and Stratigraphy	4
GEOL 390 — Field Methods	3
GEOL 393 — Research Problems in Geology First Senior Semester	3
GEOL 394 — Research Problems in Geology Second Senior Semester	3
GEOL 423 — Optical Mineralogy	3
GEOL 443 — Petrology	3
GEOL 490 — Field Camp	3
Supporting Requirements	24
CHEM 103, 113 4	4
MATH 140, 141 4	4
PHYS 141, 142 4	4
Electives	16-20

* Of the normal USP requirements (forty credit hours), at least ten credits are met by the major requirements in mathematics, chemistry, or geology (basic mathematical skill and Distributive Studies Area B).

** Until Fall '90. Students enrolling as Geology majors beginning with the Fall '90 semester will be required to take GEOL 101 (4).

** Students who failed GEOL 100 or GEOL 101 (old) but passed GEOL 110 may, on petition, be permitted to take 101 (new) without a lab.

Advising: The Director of the Undergraduate Program serves as the major advisor for geology majors. The office is Rm 3115, Geology Building, Ext. 3548. All geology faculty members are involved in advising.

Honors and Awards: (1) Geology Alumni Award for graduating senior with the highest overall scholastic average; (2) Fernow Memorial Faculty Field Camp Awards for geology majors to attend geology summer camp; (3) Sigma Gamma Epsilon Award for a senior in geology for Outstanding Scholastic Achievement and service to the Society; and (4) Best Senior Research Award.

Student Organizations: (1) Sigma Gamma Epsilon, National Honor Society for Earth Sciences, and 2) Geology Club.

Course Code Prefix: GEOL

Germanic and Slavic Languages and Literatures (GERM)

College of Arts and Humanities

3215 Jimenez Hall, 454-4301/1

Professor and Chair; Davidson
Professors: Beiken, Best, Brecht, Fuegi, Herin, Jones (Emeritus), Oster, Pfister
Associate Professors: Berry, Bilik, Fleck, Frederiksen†, Glad, Hitchcock
Assistant Professors: Fagan, Lekic, Merrill, Schallert, Strauch
Visiting Assistant Professor: Garza

* Distinguished Scholar-Teacher

Germanic Language and Literature

The undergraduate major in Germanic Language and Literature consists of thirty-six hours beyond the basic language acquisition sequence (GERM 101/104). No course completed with a grade lower than C may be used to satisfy the major requirements. Three program options lead to the Bachelor of Arts degree: 1) German language, 2) German literature, and 3) Germanic area studies. Secondary concentration and supportive electives are encouraged in the other foreign languages, comparative literature, English, history, and philosophy. Majors intending to go on to graduate study in the discipline are urged to develop a strong secondary concentration in a further area of Germanic studies; such "internal minors" are available in German language, German literature, Scandinavian studies, and Indo-European and Germanic philology.

Major Requirements

German Language Option
Core: 220, 301, 302; and both 321 and 322. Specialization: 401, 403, 405 and four 300 level courses in Germanic languages and literatures.

German Literature Option
Core: 220; two further German language courses (301, 302, 401, 403, or 405); and 321, 322. Specialization: seven 400-level courses in German literature.

Germanic Area Studies Option
Core. 220; two further German language courses (301, 302, 401, 403, or 405); and 321, 322. Specialization: two upper-level courses in Germanic area studies (348, 358, 368, 381, 382, 383, 384, or 389) and five upper-level courses in a specialization, such as Scandinavian studies or Indo-European and Germanic philology.

Russian Language and Literature

The undergraduate major in Russian Language and Literature consists of 39 hours beyond the basic language acquisition sequence (RUSS 101, 102, 201, 202). No course grade lower than C may be used to satisfy the major requirements. Two program options lead to the B.A. degree: 1) Russian Language and Literature or 2) Russian Language and Linguistics.

A common set of core courses is required of all majors, and each option must be supported by 9 hours of related course work in such disciplines as comparative literature, English, history, linguistics or philosophy. Students must submit a written proposal demonstrating the expected relevance of their chosen support module to their area of specialization. In the senior year, all language and linguistics majors must take a Selected Topics course in their area of specialization. In the senior year, all majors must write a Senior Paper typically in conjunction with one of the following (to be determined in consultation with the Undergraduate Advisor and with the permission of the course instructor): a Special Topics course within the area of specialization (for students in either option) or a 400-level course in Russian literature (an option for students in the language and literature option).

New courses whose content is identical or substantially overlaps with that of old courses may not be taken for additional credit by students who have already taken the corresponding old courses.

Major Requirements
Core (18 hours): 210 or 211, 301, 302, 303, 321, 322
Supporting Courses (9 hours): LING 200 or ENGL 301, 6 additional hours chosen from outside the Slavic section in consultation with the approved by a departmental advisor. At least 6 of the 9 total hours must be at the 300-400 level
. Specialization (12 hours): all requirements of at least one option must be fulfilled.

Major Requirements

Four courses in advanced language (one from each set: 201-202, 301-302, 401-402, 403-404), the two-semester Survey of Russian Literature (321 and 322), five additional courses on the 400-level, no more than two of which may be literature in translation.

Russian Language and Literature Option
401, 403, 431 or 432, 433 or 434. 409, 439, or 479 may be substituted for one of 431-434 upon consent of the Undergraduate advisor.

Russian Language and Linguistics Option
479 and three additional courses chosen from among 410, 411, 412, 472, 473, 475

Course Code Prefix — GERM, SLAV

Government and Politics (GVPT)

College of Behavioral and Social Sciences

2181 LeFrak, 454-2248

Professor and Chair: Quester
Professors: Azar, Butterworth, Claude†, Conway†, Davidson, Dawisha, Dillon (Emeritus) Elkin, Glass, Harrison (Emeritus), Hathorn (Emeritus), Hsueh, Marando, McNelly, Oppenheimer†, Phillips, Piper, Pirages, Plischke (Emeritus), Reeves, Stone* (Urban Studies), Uslaner, Wilkenfeld
Associate Professors: Alford, Glendening, Heisler, McIntosh, Ranald, Soltan, Terchek
Assistant Professors: Kaminski, Lalman, Lanning, McCarrick, Swistak
Lecturer: Vietri

* Joint appointment with unit indicated
† Distinguished Scholar-Teacher

The Department of Government and Politics offers programs designed to prepare students for government service, politics, foreign assignments, teaching, and a variety of graduate programs, law schools, and for intelligent and purposeful citizenship. Satisfactory completion of requirements leads to a Bachelor of Arts degree in government and politics.

The study of politics is both an ancient discipline and a modern social science. The origin of the discipline can be traced back to the earliest times when philosophers, statesmen, and citizens studied the nature of government justice, responsibility, and the consequences of government's action. More recently, the study of politics has also emphasized scientific observations about politics. Today, the discipline reflects a broad effort to collect data about politics and governments utilizing relatively new techniques developed by all of the social sciences.

The Department of Government and Politics combines both philosophical and scientific concerns in its overall program as well as in specific courses and emphasizes such broad areas as political development, policy analysis, social justice, political economy, conflict, and human rights. These broad conceptual areas are integral components of the formal fields in the department. The formal fields are (1) American government and politics; (2) comparative government; (3) political theory; (4) international affairs; (5) public administration, (6) public law; and (7) public policy and political behavior.

Areas of Specialization: The program in government and politics is highly flexible, and a variety of advising programs have been developed that meet the academic and career interests of departmental majors. The programs listed below are among the more popular ones in the department, and students can construct their own program with an advisor.

Pre-Law. Provides the student with a strong liberal arts background emphasized by law schools; includes at least one course in law, additional courses in the political and social context of law, as well as appropriate courses outside of the department.

Public Sector Employment. Within this broad category are advising programs in general public administration leading to careers at entry-level positions in federal, state, and local governments, public finance and budgeting, public policy analysis, and public personnel management. Quantitative skills are highly recommended in this area, and majors are advised to select a strong substantive minor to complement their work in public administration, American politics, and public law.

International Relations. Combines courses in the department in international relations and comparative politics with a strong substantive minor, such as economics, business, or resource management. In addition, a strong background in a foreign language is highly recommended.

Public Interest. A broadly defined area emphasizing the American political system, organizing, campaigning, lobbying, policy analysis, and public sector management.

In addition, the department also offers strong programs in political theory, comparative human rights, environmental politics, women and politics, and urban politics.

Requirements for the Government and Politics Major. Government and Politics majors must take a minimum of thirty-six semester hours in government courses and may not count more than forty-two hours in government toward graduation. No government course in which the grade is less than C may be counted as part of the major. No government courses in the major may be taken on a pass-fail basis.

All government majors are required to take GVPT 100, 170, 441, or 442 and such other supporting courses as specified by the department. They must take one course from three separate government fields as designated by the Department.

All departmental majors shall take ECON 205 or ECON 201. In addition, the major will select courses from one of the approved skill options. A list of courses that will satisfy each option is available in the departmental office.

All students majoring in government may apply for admission to the GVPT Honors Program. Additional information concerning the Honors Program may be obtained at the departmental offices.

The department offers students the opportunity to observe government agencies and political groups in action through a variety of internship experiences. Only nine hours of GVPT internship credit will apply to the thirty-six hours needed in the major. In no case may more than fifteen GVPT internship credits be counted toward the 120 credits needed to graduate.

Academic advising is available daily on a walk-in basis in the Undergraduate Advising Office (2181J LeFrak Hall).

Course Code Prefix — GVPT.

Health Education (HLTH)

College of Physical Education, Recreation, and Health

Room 2387 PERH Building, 454-6077

Chair: Dr. Glen G. Gilbert
Associate Chair: Dr. Harvey E. Clearwater
Professors: Burt, Gold, Greenberg, Leviton and Wilson
Associate Professors: Allen, Beck, Clearwater, Feldman and Miller
Assistant Professors: McKay and Thomas
Lecturers: Mann and Schiraldi
Instructors: Hyde and Ramsey

The Health Education Major: Students majoring in health education have two tracks to choose from at the undergraduate level. The first option is community health education which prepares students for entry level health education positions in community settings such as voluntary health associations, worksite health promotion programs, or other health agencies. The second option is school health educaion which prepares students for teaching health educaion in schools. Students are referred to the section on the College of Education for information on teacher education application procedures. Two certificate options are also available in driver education.

Requirements for Major Including Program Options:
The Freshman curriculum for both the School Health Option and the Community Health Option is the same:

Freshman Curriculum

Semester Credit Hours	
ENGL 101 — Introduction to Writing	3
MATH 110 or 102-3-4 or 115 — Mathematics	3
HLTH 140 — Personal and Community Health	3
CHEM 111 — Chemistry in Modern Life	3
BIOL 105 — Principles of Biology I	4
JOUR 100 — Introduction to Mass Communications	3
PSYC 100 — Introduction to Psychology	3
University Studies Program Requirements	3
SOCY 100 — Introduction to Sociology	3
HLTH 150 — First Aid and Emergency Medical Services	2

Health Education Curriculum - School Health Option

Sophomore Year

HLTH 230 — Introduction to Health Behavior	6
PHIL 140 — Contemporary Moral Issues	3
ZOOL 201, 202 — Human Anatomy and Physiology I and II	4
University Studies Program Requirements	9
Required Health Electives	6
PSYC 221 — Social Psychology	3
HLTH 105 — Science and Theory of Health	2

Junior Year

ENGL 391 or 393 — Advanced Composition or Technical Writing	3
HLTH 420 — Methods and Materials in Health Education	3
EDHD 300S — Human Development and Learning	6
EDCI 390 — Principles and Methods of Secondary Education	3
Required Health Elective	3
EDHD 340 — Human Development Aspects of the Helping Relationship	3
HLTH 390 — Organization and Administration of Health Programs	3
EDMS 410 — Principles of Testing and Evaluation	3
EDCP 417 — Group Dynamics and Leadership	3

Senior Year

HLTH 340 — Curriculum, Instruction and Observation	3
Required Health Electives	6
University Studies Program Requirements — Advanced Studies	6
EDPA 301 — Foundations of Education	3
EDCI 491 — Student Teaching in Secondary Schools — Health	12

Community Health Option

Sophomore Year

HLTH 230 — Introduction to Health Behavior	3
PHIL 140 — Contemporary Moral Issues	3
ZOOL 201, 202 — Human Anatomy and Physiology I and II	4
University Studies Program Requirements	9
Required Health Electives	6
PSYC 221 — Social Psychology	3
HLTH 105 — Science and Theory of Health	2

Junior Year

U.S.P. Junior English Requirement	3
MICB 100 — Basic Microbiology	4
EDHD 340 — Human Development Aspects of the Helping Relationships	3
EDMS 451 — Introduction to Educational Statistics	3
HLTH 390 — Organization and Administration of School Health Programs	3
HLTH 420 — Methods and Materials in Health Education	3
HLTH 498R — Introduction to Community Health	3
SOCY 498A — Medical Sociology	3
HLTH 430 — Health Education in the Workplace	3
EDCP 417 — Group Dynamics and Leadership	3

Senior Year

Required Health Electives	9
HLTH 498S — Principles of Community Health	3
FMCD 483 — Family and Community Service Systems	3
HLTH 489 — Field Laboratory Projects and Workshops	6
HLTH 386 — Field Work	3
HLTH 387 — Field Work Analysis	3

Minor in School Health Education: 27 hour minor. Thirteen semester hours in health education (HLTH 140, 150, 310, 420, 450). Eight semester hours in human anatomy and physiology (ZOOL 201, 202). Six semester hours of human behavioral science. At least one course should focus on children or youth.

Driver Education Instructors Certification Programs

A. Classroom Instructor — 18 semester hours. Twelve semester hours as follows: HLTH 280, 305, 345 and 375; plus six semester hours selected from the following courses: HLTH 270, 498F, or ENES 473.
B. Laboratory Instructor — 12 to 15 semester hours. HLTH 280, 305, 345, plus an internship in driver education (usually six semester credits).

Admission: Admission requirements to the Department of Health Education are the same as those of the College of Education.

Advising: Undergraduate Health Education Advisor: David H. Hyde, PERH Building, Room 2374, 454-3369 or 454-2629. Advising is mandatory.

Student Honors Organization: Eta Sigma Gamma. The Epsilon chapter was established at the University of Maryland in May of 1969. This professional honorary organization for health educators was established to promote scholarship and community service for health majors at both the graduate and undergraduate levels. Students may apply after two consecutive semesters with a 2.75 cumulative average.

Course Code Prefix: HLTH

Hearing and Speech Sciences (HESP)

College of Behavioral and Social Sciences

0100 LeFrak Hall, 454-5831

Professor and Acting Chair: McCall
Professors: Newby (Emeritus), Yeni-Komshian
Associate Professors: Baker, Dingwall, Gordon-Salant, Roth
Assistant Professor: Ratner
Instructors: Cuyjet, McCabe, Patrick, Perlroth, Rosenberg, Smallets

Hearing and speech sciences is an inherently interdisciplinary field, integrating knowledge from the physical and biological sciences, medicine, psychology, linguistics, and education in order to understand human communication and its disorders. The department curriculum leads to the Bachelor of Arts degree. An undergraduate major in this field is an appropriate background for graduate training in speech-language pathology or audiology, as well as for graduate work in other disciplines requiring a knowledge of normal or disordered speech, language, or hearing. The student who wishes to work professionally as a speech-language pathologist or audiologist must complete additional graduate coursework in order to meet state licensure and national certification requirements.

The department operates a Hearing and Speech Clinic (telephone: 454-2546), which serves the campus and surrounding area, and provides an in-house opportunity for the clinical training of students. Department facilities also include an integrated audio-visual listening and viewing laboratory, and several well-equipped research laboratories. Hearing and speech majors are invited to join the departmental branch of the National Student Speech-Language and Hearing Association (NSSLHA).

The hearing and speech sciences curriculum is designed in part to provide supporting coursework for majors in related fields, so most course offerings are available to both departmental majors and non-majors. Permission of instructor may be obtained for waiver of course prerequisites for non-majors wishing to take hearing and speech courses of interest.

MAJOR REQUIREMENTS

A student majoring in hearing and speech sciences must complete thirty semester hours of specified courses and six semester hours of electives in the department to satisfy major course requirements. No course with a grade less than C may count toward major course requirements. In addition to the thirty-six semester hours needed for a major, twelve semester hours of supporting courses in statistics, allied and other related fields are required. For these twelve hours, a C average is required.

Major Courses. Specified courses for a major in hearing and speech sciences (thirty credits) are:

	Credit Hours
HESP 202 — Introduction to Hearing and Speech Sciences (Introduction to Communication and Its Disorders)	3
HESP 300 — Introduction to Psycholinguistics	3
HESP 305 — Anatomy and Physiology of the Speech Mechanism	3
HESP 311 — Anatomy, Pathology and Physiology of the Auditory System	3
HESP 400 — Speech and Language Development in Children	3
HESP 402 — Speech Pathology I (Childhood Language and Articulation Disorders): formerly HESP 302	3
HESP 403 — Introduction to Phonetic Science	3
HESP 404 — Speech Pathology II (Voice Disorders, Stuttering and Oro-facial Anomalies)	3
OR	
HESP 406 — Speech Pathology III (Aphasia and Neuromotor Disorders)	3
HESP 407 — Bases of Hearing Science	3
HESP 411 — Introduction to Audiology	3
Electives in the department (6 credits) may be taken from among the following:	
HESP 417 — Principles and Methods in Speech-Language Pathology and Audiology	3
HESP 418 — Clinical Practice in Speech-Language Pathology and Audiology	3
HESP 498 — Seminar (various topics — check current listings)	3
HESP 499 — Independent study	3

The sequence of courses may vary; however, no upper level courses may be attempted without special permission until a student has earned a minimum of fifty-six credits. The student is encouraged to consult with a faculty advisor in the preparation of an individualized program plan of study. Information on advising for hearing and speech sciences may be obtained by calling the department office at 454-5831.

Supporting Courses. The undergraduate student with a major in hearing and speech sciences will take twelve semester hours in supporting areas of study, including one of the following courses in statistics: EDMS 451, PSYC 200, or SOCY 201. The remainder of supporting courses are from allied fields such as psychology, linguistics, sociology, education, health, family and community development, and anthropology (three to six credits), and other related fields such as physics, zoology, engineering, philosophy, computer science, and physical education (three to six credits). The student should see a faculty advisor in the Hearing and Speech Sciences Department for advice and approval of a supporting course sequence.

Course Code Prefix — HESP

Hebrew and East Asian Languages and Literatures (HEBR, CHIN, JAPN)

College of Arts and Humanities

2106 Jimenez Hall, 454-4307/5152

Professor and Chair: Rimer
Professors: Berlin, Mintz, Ramsey
Associate Professors: Chin, Kerkham, Sargent, Walton
Assistant Professor: Manekin
Instructors: Levy, Liberman, Miura, Yaginuma

East Asian Languages and Literatures

Major. A student may major in East Asian languages and literatures with a concentration in Chinese or Japanese. Either concentration provides the training and cultural background needed for entering East Asia-related careers in such fields as higher education, the arts, business, government, international relations, agriculture, or media. Students may also want to consider a double major in East Asian languages and literatures and another discipline, such as business, international relations, economics or journalism.

After completing the prerequisite of one year of language (twelve credits): CHIN 101 (Elementary Chinese; six hours per week, fall), CHIN 102 (Elementary Spoken Chinese; three hours per week, spring), and CHIN 103 (Elementary Written Chinese; three hours per week, spring) or JAPN 101 (Elementary Japanese I; six hours per week, fall) and JAPN 102 (Elementary Japanese II; six hours per week, spring), students must complete thirty-six credits for the major course requirements (eighteen language, six civilization/history, twelve elective). No grade lower than C (2.0) may be used toward the major.

Chinese Course Requirements. *Language:* CHIN 201, 202, 203, 204, 301, 302; *Civilization/History:* Option 1 — HIST 284 and 481 (or 485); Option 2 — HIST 285 and 480; four electives at the 300 level or above in Chinese language, literature, linguistics, or other East Asian subjects, subject to the approval of student's advisor. Among the four, one must be in the area of Chinese linguistics, and one in the area of Chinese literature.

Japanese Course Requirements. *Language:* JAPN 201, 202, 203, 204, 301, 302. *Civilization/History:* Option 1 — HIST 284 and 483. Option 2 — HIST 285 and 482; four electives at the 300 level or above. Among the four, one must be in the area of Japanese linguistics and one in Japanese literature, subject to the approval of student's advisor.

Supporting Courses for Chinese or Japanese. Students are strongly urged to take additional courses in a discipline relating to their particular field of interest, such as linguistics, literary criticism, or comparative literature. The range of supporting courses can be decided upon in consultation with the student's advisor.

Special Language Courses. In addition to the more traditional courses in literature in translation, linguistics, and advanced language acquisition, courses in both Chinese and Japanese business language at the third-year level are offered. Students are also encouraged to spend at least one summer or semester in China (Taiwan or the People's Republic of China) or Japan in intensive language study under one or another of the University's exchange programs with foreign universities or at other approved centers of higher education.

Internship Program. This program allows students to gain practical experience by working in Washington/Baltimore area firms, corporations, and social service organizations that are East Asia-related, as well as in various branches of the Federal government.

Hebrew Language and Literature

While the department does not yet offer a major in Hebrew language and literature, it does provide both beginners and those with previous

study of the Hebrew language an opportunity to become conversant with the 3,000-year development of Hebrew language, literature, and culture

Elementary and intermediate courses develop the ability to communicate effectively in modern Hebrew. Courses in composition and conversation emphasize vocabulary enrichment, grammar and syntax of the written and spoken language. On the advanced level the student analyzes the major texts of classical and modern Hebrew literature.

Courses are also offered in English on topics such as the Bible, Rabbinic Thought, Jewish Mysticism, Jewish Law, Ancient Near Eastern Civilization, Hebrew Literature in Translation, Women in Jewish Literature, and other special topics.

Hebrew may be used to fulfill the requirements of the Foreign Language Education curriculum of the Department of Secondary Education. Students wishing to emphasize Hebrew as a major subject may do so within the framework of the Jewish studies major. See the entry on the Jewish Studies Program or consult the Hebrew Office for requirements.

Course Code Prefix — CHIN, HEBR, JAPN

History (HIST)

College of Arts and Humanities

2115 Francis Scott Key Hall, 454-2843

Professor and Chair: Price
Professors: Belz, Berlin, Brush†, Calcott, Cockburn, Cole, Duffy (Emeritus), Evans, Foust, Gilbert†, Goodblatt, Gordon (Emeritus), Haber, Harlan†, Henretta, Jashemski (Emerita)†, Kent, Lampe, McCusker, Merrill (Emeritus), A. Olson†, K. Olson, E.B. Smith, Sparks, Sutherland, Warren, Yaney
Associate Professors: Breslow, Darden, Eckstein, Farrell, Flack, Folsom, Friedel, Giffin, Grimsted, Gullickson, Harris, Hoffman, Holum, Kaufman, Majeska, Matossian, Mayo, Moss, Perinbam, Reichard, Ridgway, Rozenblit, Spiegel, Stowasser, Sumida, Weissman, Wright, Zilfi
Assistant Professors: Bradbury, Nicklason, Thompson, Williams
Adjunct: Carr, Papenfuse

†Distinguished Scholar-Teacher

The Department of History seeks to broaden the student's cultural background through the study of history and to provide preparation for those interested in law, publishing, teaching, journalism, government service, and graduate study.

A faculty advisor will be assigned by the Director of Undergraduate Studies to assist each major in planning a curriculum to meet his or her personal interests. A "program plan," approved by the advisor, should be filed with the department as soon as possible. Students are required to meet with an assigned advisor once every semester or sign a waiver during preregistration.

The Department sponsors a History Undergraduate Association which majors and other interested students are encouraged to join.

Major Requirements. Minimum requirements for undergraduate history majors consist of thirty-nine hours of coursework distributed as follows: twelve hours in 100-200 level survey sources selected from at least two fields of history (United States, European, and Non-Western); fifteen hours, including HIST 309 in one major area (see below); twelve hours of history in at least two major areas other than the area of concentration. Without regard to area, fifteen hours of the thirty-nine total hours must be at the junior-senior (300-400) level. ***Note:*** All majors must take HIST 309.

I. **Survey Courses**
   1. The requirement is twelve hours at the 100-200 level taken in at least two fields.
   2. Fields are defined as United States, European, and Non-Western history. All survey courses have been assigned to one of these fields. See department advisor.
   3. In considering courses that will fulfill this requirement, students are encouraged to:
      a. select at least two courses in a sequence
      b. select at least one course before A.D. 1500 and one course after A.D. 1500
      c. sample both regional and topical course offerings.
   4. Students will normally take one or more survey courses within their major area of concentration.

II. **Major Area of Concentration**
   1. The requirement is fifteen hours including HIST 309 in a major area of concentration.
   2. An area is defined as a series of related topical, chronological, or regional courses, such as:

Topical	Region	Country
History & Philosophy of Science	Latin American	Britain
Social	Middle Eastern	Continental Europe
Intellectual	European	Russia
Economic	United States	
Religious	Early Modern Europe	
Diplomatic	Medieval	
Women's History	Ancient	
Afro-American	East Asia	
Constitutional	African	
Jewish		
Military		

   3. The major area may be chronological, regional, or topical.
   4. Students may select both lower and upper level courses.
   5. A combination of chronological-topical courses or regional-topical courses is desirable.
   6. The proseminar, HIST 309, should normally be taken in the major area of concentration.

III. **Twelve Hours of History in at least Two Other Areas than the Area of Concentration.**
   1. Students may select either lower or upper level courses.
   2. Students are encouraged to consider regional diversity.
   3. Students are encouraged to take at least two elective courses in chronological periods other than that of their major area of concentration.

Supporting courses. Nine credits at the 300-400 level in appropriate supporting courses, the courses do not all have to be in the same department. The choice of courses must be approved in writing — before attempted, if possible — by the departmental advisor.
Grade of C or higher is required in all required history and supporting courses.
For students matriculating after December, 1979, credit may not be earned from the CLEP general history exam; for students matriculating after September 1, 1981, history credit may not be earned from any CLEP exam. Advanced placement credit will be granted as elective, but will not apply toward major requirements.

General University Requirements in History. All History courses on the 100, 200, 300, and 400 levels are open to students seeking to meet the University requirements in Area C (Division of Arts and Humanities) with the exception of HIST 214, 215, 309, 316, 317, 318. A few other courses are open only to students who satisfy specified prerequisites, but that does not limit them to history majors. It should be noted that special topics courses — HIST 219, 319 and 419 — are offered on several different subjects of general interest each semester. Descriptions may be obtained from the History Department.

Honors in History. Students who major or minor in history may apply for admission to the History Honors Program during the second semester of their sophomore year. Those who are admitted to the program substitute discussion courses and a thesis for some lecture courses and take an oral comprehensive examination prior to graduation. Successful candidates are awarded either honors or high honors in history.

The History Department offers pre-honors work in American history and in European history and in European history courses. Consult the *Schedule of Classes* for specific offerings each semester. Students in these sections meet in a discussion group instead of attending lectures. They read widely and do extensive written work on their own. Pre-honors sections are open to any student and are recommended for students in General Honors, subject only to the instructor's approval.

Course Code Prefix — HIST

Horticulture (HORT)

College of Agriculture

Undergraduate Program: 2109B Holzapfel Hall, 454-3143

Professor and Chair: Quebedeaux
Professors: Gouin, Kennedy, Oliver, Solomos, Wiley
Professors Emeritus: Link, Scott, Shanks, Stark, Thompson, Twigg
Adjunct Professor: Galleta
Visiting Professor: Faust
Associate Professors: Beste, Bouwkamp, Deitzer, Gould, Kundt, McClurg, Ng, Schales, Schlimme, Swartz, Walsh
Adjunct Associate Professor: Kretchmer, Krizek
Assistant Professors: Graves, Hamed, Healy, Hershey, Scarfo, Stutte
Lecturer: Mityga

The horticulturist combines a knowledge of the basic sciences with a knowledge of factors affecting plant growth and development in an effort to help meet the food needs of the world population and help beautify our surroundings. The horticulturist specifically is involved with fruit production (pomology), vegetable production (olericulture), greenhouse plant production (floriculture), the production of ornamental trees and shrubs, and the

storage and transportation of horticultural crops until they reach the consumer (post-harvest horticulture). The landscape designer combines a knowledge of plant growth and development with principles of functional and aesthetic planning and design to create landscapes that are useful, pleasing, and environmentally sound.

The Department of Horticulture offers undergraduate curriculum options in Horticultural Production, Horticultural Science, Horticultural Education, and Landscape Design and Contracting. The undergraduate curriculum options prepare the student either for advanced graduate study at the masters or doctorate level or for entry into any of the various horticultural industries. Advanced studies in the department, leading to the M.S. and Ph.D. degrees, are available to outstanding students having a strong motivation for horticultural research, university teaching, and/or extension education.

Students interested in pursuing a continued education in forestry, conservation-related subjects, or other disciplines related to the biological/natural life sciences are advised in the Department of Horticulture. Foundation courses, strongly oriented in the sciences, transfer readily into related curricula to any of the approximately fifty universities which offer accredited undergraduate degrees in forestry. Virginia Polytechnic Institute and State University (VPI/SU) and West Virginia University (WVU) offer Maryland residents accepted into their forestry programs eligibility for in-state tuition.

Immediate employment opportunities for horticulture graduates include: commercial production and wholesale and retail sale of horticultural crops through orchards and vegetable farms, nurseries, greenhouse operations, garden centers, and florist shops; production management and sales in allied industries such as food processing, seed production, and agricultural chemicals; interior plantscaping; and management of landscapes associated with public and private parks, botanical gardens, arboretums, highway systems, and large scale commercial, industrial, or residential developments. Graduates of the landscape design and contracting option are employed by commercial landscape contracting, nursery, and engineering firms engaged in the provision of planning design and installation services for landscape development. Other landscape design and contracting students have pursued the Master of Landscape Architecture degree. The department's horticulture education option certifies students to teach horticulture at the high school level.

All students should meet with the option advisor before enrolling in courses for the option. All horticulture students, regardless of option, must complete all courses listed as Departmental Requirements. Students must also complete all courses listed as Option Requirements in one of the department's four curriculum options.

Curriculum in Horticulture

	Semester Credit Hours
Departmental Requirements — All Options:	
AGRO 302 — General Soils	4
AGRO 453 — Weed Control	3
BIOL 105 — Principles of Biology I	4
BOTN 212 — Plant Taxonomy	4
BOTN 221 — Diseases of Plants	4
BOTN 441 — Plant Physiology	4
CHEM 103 — General Chemistry I	4
CHEM 104 — Fundamentals of Organic and Biochemistry	4
or	
CHEM 233 — Organic Chemistry I*	4
ENTM 252 — Agricultural Insect Pests	3
or	
ENTM 453 — Insect Pests of Ornamental Plants**	3
HORT 398 — Seminar	1
MATH 110 — INtroduction to Mathematics	3
or	
MATH 115 — Pre-calculus*	

*Students interested in completing the Horticultural Science Option shall enroll in CHEM 233 rather than Chem 104. (Note: CHEM 113 is a prerequisite for CHEM 233.) Horticultural Science Option students shall enroll in MATH 115 rather than MATH 110.

**Students interested in completing the Landscape Design and Contracting Option shall enroll in ENTM 453 rather than ENTM 252.

Horticultural Production Option

	Semester Credit Hours
AREC 250 — Elements of Agricultural and Resources Economics	3
or	
ECON 203 — Principles of Economics II	3
AREC 306 — Farm Management	3
or	
AREC 414 — Agricultural Business Management	3
HORT 201 — Environmental Factors and Horticultural Crop Production	4
HORT 202 — Management of Horticultural Crop Production	4
HORT 271 — Plant Propagation	3
HORT 274 — Genetics of Cultivated Plants	3
HORT 474 — Physiology of Maturation and Storage of Horticultural Crops	3
Select *two* of the following:	
AGRO 405 — Turf Management	3
HORT 411 — Fruit Crop Production	3
HORT 422 — Vegetable Crop Production	3
HORT 432 — Greenhouse Crop Production	3
HORT 452 — Landscape Establishment and Maintenance	3
HORT 456 — Nursery Crop Production	3
HORT 472 — Advanced Plant Propagation	2
University Studies Program requirements (over and above what is included in Departmental and Option requirements)	27-30
Electives	23-27

Horticultural Science Option

CHEM 113 — General Chemistry II	4
HORT 201 — Environmental Factors and Horticultural Crop Production	4
HORT 202 — Management of Horticultural Crop Production	4
HORT 271 — Plant Propagation	3
HORT 274 — Genetics of Cultivated Plants	3
HORT 474 — Physiology of Maturation and Storage of Horticultural Crops	3
MATH 220 — Elementary Calculus I	3
PHYS 121 — Fundamentals of Physics I	4
PHYS 122 — Fundamentals of Physics II	4
Select *one* of the following:	3
AGRO 403 — Crop Breeding	3
AGRO 411 — Soil Fertility	3
AGRO 417 — Soil Physics	3
AGRO 421 — Soil Chemistry	3
BCHM 261 — Elements of Biochemistry	3
BOTN 416 — Plant Structure	4
BOTN 484 — Plant Biochemistry	3
University Studies Program Requirements (over and above what is included in Departmental and Option requirements)	30
Electives	16-17

Horticultural Education Option

AEED 302 — Introduction to Agricultural Education	2
EDIT 450 — Training Aids Development	3
AEED 305 — Teaching Young and Adult Farmer Groups	1
AEED 311 — Teaching Secondary Vocational Agriculture	3
AEED 313 — Student Teaching	5
AEED 315 — Student Teaching	1-4
AGRO 405 — Turf Management	3
EDHD 300 — Human Development and Learning	6
EDPA 301 — Foundations of Education	3
HORT 160 — Introduction to the Art of Landscaping	3
HORT 201 — Environmental Factors and Horticultural Crop Production	4
HORT 202 — Management of Horticultural Crop Production	4
HORT 271 — Plant Propagation	3
HORT 453 — Woody Plant Materials	3
or	
HORT 454 — Woody Plant Materials	3
SPCH 107 — Technical Speech Communication	3
University Studies Program requirements (over and above what is included in Departmental and Option requirements)	27
Electives	6-9

Landscape Design and Contracting Option

AREC 250 — Elements of Agricultural and Resource Economics	
or	
ECON 203 — Principles of Economics II	3
AREC 306 — Farm Management	3
or	
AREC 414 — Agricultural Business Management	3
APDS 101 — Fundamentals of Design	3
EDIT 160 — Design Illustrating I	3
HORT 160 — Introduction to the Art of Landscaping	3
HORT 260 — Principles of Graphic Communication in Landscape Design	2
HORT 361 — Principles of Landscape Design	3
HORT 452 — Principles of Landscape Establishment and Maintenance	3
HORT 453 — Woody Plant Materials	3
HORT 454 — Woody Plant Materials	3
HORT 462 — Planting Design	3
HORT 464Z — Principles of Landscape Development	3
HORT 465 — Design of Landscape Structures and materials	3

HORT 466 — Advanced Landscape Design	3
HORT 467 — Principles of Landscape Contracting	3
Electives	8-12

Course Code Prefix — HORT

Housing and Design (HSAD)

College of Arts and Humanities

Room 1401 Marie Mount Hall, 454-2135

Professor and Chair: Francescato
Professors: Bonta, Fabiano, Kjaer
Associate Professor: Chen, McWhinnie, Lozner
Assistant Professors: Ansell, Eckersley, Gips, Hoover, Roper, Thorpe
Lecturers: Davis (p.t.), Dean, Elliott (p.t.), Jacobs, Falleroni (p.t.), Gracyalny (p.t.), Sham, Tasi (p.t.)

The Department of Housing and Design offers programs of concentration in three areas: housing, interior design, and advertising design. The department seeks to provide professionally focused instruction in the theoretical foundation, methods and skills pertinent to each concentration area. In addition, students are encouraged to acquire a broad base of general education by enrolling in elective, recommended, and required courses outside of the department.

Housing. The housing curriculum is designed to reflect the multidisiciplinary nature of the field as well as the varied interests of housing majors. Consequently, students under the close supervision and advisement of the faculty are given the opportunity to develop a program suitable to their interests and career goals. Aside from the required housing courses provided by the department, students are recommended to take courses that will emphasize the development of methodological skills (e.g., statistics, computer programming), as well as an understanding of the political, social, and economic environment in which housing is produced and consumed. Graduates will be qualified for employment in the housing industry, governmental housing agencies, housing authorities, and consumer organizations. They will also be qualified to pursue a program of graduate studies in housing or urban affairs.

Interior Design. This program provides the student with fundamental concepts and basic professional skills required to plan and design interior environments. These include not only aesthetic considerations, but also the integration of structural and mechanical building systems, the satisfaction of functional requirements, an understanding of the needs and motivations of the users and sponsors, considerations of cost, and compliance with codes and regulations. Functional and imaginative applications of design skills to space planning and furnishing of commercial, institutional, and residential interiors are stressed. Special courses include gaming simulation in design and seminars in theoretical concerns. A student chapter of the professional organization American Society of Interior Design (ASID) and internship opportunities provide contact with practicing professionals. Graduates will be qualified for entry level employment with interior design firms and architectural firms. Students with above average performance will be qualified to pursue graduate study. After considerable experience has been gained in professional practice, some graduates will open their own firm or partnership. The Interior Design Program is accredited by the Foundation for Interior Design Education and Research (FIDER).

Advertising Design. This program provides a foundation in the fields of graphic and visual communication. Although some of the media used in visual communication are the same as those of the painter and the sculptor, the purposes and methods of the designer differ from those of the artist in that utility is the focus of this endeavor. Visual elements such as lines, planes, volume, texture, and color are used to generate information and to communicate messages. This process requires the acquisition of specific professional skills such as page composition, type selection, illustration, photography, design of orientation systems, and the use of complex technology in contemporary printing and electronic media. Students graduating from this program will be qualified to begin a career as graphic designers and seek employment in publishing firms, advertising agencies, the film and television industry, the print media, the packaging industry, and in the graphic section of institutions and government agencies. Students with above average performance will be qualified to pursue graduate study. A student chapter of the professional organization I.G.I. and internship opportunities provide contacts with practicing professionals.

Admission to the Pre-Design Major. Any student who has been admitted to the University may declare a pre-design major. However, admission to the University or to the pre-design major does not guarantee admission to the interior design or advertising design major. Admission to these two majors is governed by the "Selective Admission" procedure outlined below.

Admission to the Interior Design and Advertising Design Majors.

A change in admissions criteria for the Design major is currently under consideration. Students should check with the department for the latest information on the status of this proposed change.

Admission to the majors of interior design and advertising design is selective. Ordinarily, students are admitted to these majors only after a Design Work Portfolio, produced according to minimum requirements set forth below, has been reviewed and found satisfactory by the Faculty Admission Committee composed of the three Area Coordinators and the Department Chair. The portfolio must be submitted by the appropriate deadline. Students will need a minimum of twenty-nine credit hours, including a grade of C or higher in APDS 101, APDS 102, APDS 103 and EDIT 160, before their portfolios are reviewed. The following categories of students are exempted from the portfolio review requirement.

(a) Freshmen having a 3.0 high school GPA and combined SAT score of 1200 or above; or who are National Merit and National Achievement Scholarship finalists or semifinalists; or recipients of the Francis Scott Key Scholarship; or of Maryland Distinguished Scholar Award, or Benjamin Banneker Scholarship.
(b) Students with a minimum of twenty-nine credit hours and a grade of B or higher in the following courses: APDS 101, APDS 102, APDS 103, and EDIT 160.

Transfer students must submit their Design Work Portfolio at the time of their application for admission to the University of Maryland or later, but in any case by the appropriate deadline. These students will be admitted to the majors of interior design or advertising design after the portfolio has been reviewed and found satisfactory. Transfer students who have not completed twenty-nine credits, or who have not completed the four required courses, or whose Design Work Portfolios have been found unsatisfactory may be admitted as "pre-design" students.

Potentially talented students who are unable to meet the above criteria may be admitted provided they have applied as a "case-by-case" student and have been accepted by the Faculty Admission Committee composed of the three Area Coordinators and the Department Chair. Examples of non-academic criteria on the basis of which the Committee may grant admission are: samples of the applicant's design work done in high school or community college, participation in portfolio preparation summer courses, leadership in extracurricular or community activities, hobby skills related to interior design and/or advertising design, job related experience in the design field, Armed Forces experience in design areas, etc.

Students not yet admitted to the majors of interior design an advertising design are classified as "pre-design" students. Pre-design students will be granted preferential treatment when registering for departmental courses in which there is an enrollment limitation.

Admission to the interior design or advertising design majors is not automatic, even when all relevant requirements have been fulfilled. It is the student's responsibility to file a "Change of Major" form with the department by the appropriate deadline prior to the beginning of the semester in which the student plans to take 200-level-and-above courses restricted to majors only. No exceptions will be made to this procedure. Students will be informed by mail of action taken.

Deadlines: Admission application (filing "Change of Major" form) and portfolio submission *must be received* by:

(a) For fall semester — May 23 (August 15 for students enrolled in "Preparation of Design Portfolio" or in Summer School)
(b) For spring semester — January 6

Degree Requirements. The degree of Bachelor Science is conferred for the satisfactory completion, with an average of C or better, of a prescribed curriculum of 120 academic semester hour credits. Students must earn a grade of C or higher in all courses applied towards satisfaction of the requirements for the major in Interior or Advertising Design. Moreover, a course in which a grade lower than a C was earned cannot be used as a prerequisite for a course required for the major.

Advertising Design Curriculum
(Advertising design courses must be taken in sequence.)

	*Semester Credit Hours**
University Studies Program Requirements	39-40
B.S. Requirements**	21
ARTT 110 — Elements of Drawing	3
EDIT 160 — Design Illustrating I	3
APDS 101 — Fundamentals of Design	3
APDS 102 — Design II	3
APDS 103 — Design III: Three-dimensional Design	3
APDS 210 — Presentation Techniques	3
APDS 211 — Action Drawing: Fashion Sketching	3
EDIT 234 — Graphic Communications	3
APDS 237 — Photography	3
APDS 320 — Fashion Illustration	3
APDS 330 — Typography and Lettering	3
APDS 331 — Advertising Layout	3
APDS 332 — Display Design	3
APDS 337 — Advanced Photography	3
APDS 380 — Professional Seminar	3

APDS 430 — Advanced Problems in Advertising Design	3
APDS 431 — Advanced Problems in Advertising Design	3
HSAD 340 or 341 or 362 — (courses dealing with interiors)	3
ARTH 450 — 20th Century Art (or Other Upper Level ARTH)	3
Electives —	10-14
Total	120

Interior Design Curriculum
(Interior Design courses must be taken in sequence.)

	Semester Credit Hours
University Studies Program Requirements	39-40
B.S. Requirements	21
EDIT 160 — Design Illustrating I	3
APDS 101 — Fundamentals of Design	3
APDS 102 — Design II	3
APDS 103 — Design III: Three Dimensional Design	3
EDIT 241 — Architectural Drawing	2
HSAD 210 — Presentation Techniques	2
PHYS 106 — Light, Perception, Photography, and Visual Phenomena	3
PHYS 107 — Laboratory	1
HSAD 246 — Materials of Interior Design	3
HSAD 340 — Period Homes and Their Furnishings	3
HSAD 341 — Contemporary Developments in Architecture, Interiors, Furnishings	3
HSAD 342 — Space Development	3
HSAD 343 — Interior Design I	3
HSAD 344 — Interior Design II	3
HSAD 345 — Professional Aspects of Interior Design	3
HSAD 362 — Ideas in Design OR ARTH (300-400 Level)	3
TEXT 363 — History of Textiles	3
HSAD 440 — Interior Design III	4
HSAD 441 — Interior Design IV	4
Electives	10-24
Total	120

* No upper level credits may be attempted without special permission until a student has earned a minimum of 56 credits.

** These credits may simultaneously satisfy University Studies requirements.

Note: More detailed information about curriculum and semester-by-semester sample programs is available from the department.

Course Code Prefixes — APDS, HSAD

Human Development (Institute for Child Study) (EDHD)

College of Education

3304 Benjamin Building, 454-2034

Professor and Director: Hardy
Professors: Eliot, Grambs†, Hatfield, Porges, Seefeldt†, Torney-Purta
Associate Professors: Bennett, Flatter, Fox, Gardner, Huebner, Koopman, Marcus, Matteson, Robertson-Tchabo, Tyler
Assistant Professors: Green, Holloway, Hunt, Taylor
Emeriti: Bowie, Dittmann†, Goering, Hatfield, Kurtz, Margan

† Distinguished Scholar-Teacher

The Department of Human Development offers: (1) a variety of undergraduate courses in human development at the 300 and 400 levels, including the areas of development, learning and adjustment, (2) graduate programs leading to the M.A., M.Ed. and Ph.D. degrees and the A.G.S. certificate, and (3) field experiences and internships to develop competence in applying theory to education practice in schools and other settings. Areas of concentration in human development include infancy, early childhood, adolescence, adulthood, and aging. Research in educational psychology, social, physiological, personality and cognitive areas with emphasis on the social aspects of development enhance the instructional program.

Undergraduate courses and workshops are designed for pre-service and in-service teachers as well as for students preparing to enter human services vocations. The department does not offer an undergraduate major. However, undergraduate students may elect human development courses in areas of concentration such as (1) infancy and early childhood, (2) adolescence, (3) aging, and (4) human services (social service, recreation, corrections, etc.). Major purposes of undergraduate offerings in human development are (1) providing experiences which facilitate the personal growth of the individual, and (2) preparing people for vocations and programs which seek to improve the quality of human life. These offerings are designed to help professionals and paraprofessionals acquire a positive orientation toward people and basic knowledge and skills for helping others.

Through the Institute for Child Study, the faculty provides consultant services and staff development programs for school systems, parent groups, court systems, mental health agencies, and other organizations involved with helping relationships.

Course Code Prefix — EDHD

Human Nutrition and Food Systems (HNFS)

College of Human Ecology

3304 Marie Mount Hall, 454-2139

Professor and Chair: Read
Professors: Ahrens, Beaton, Prather, Sims
Associate Professors: Castonguay, Moser-Veillon, Williams
Assistant Professors: Choi, Noble, Taylor
Lecturers: Curtis, Norton
Adjunct Professors: Hamosh, Reiser
Adjunct Associate Professors: Callaway, Goldberg, Pao, Reynolds, Szepesi
Adjunct Assistant Professors: Behall, Conway, Deuster, Hallfrisch, Michaelis, Miles, Monagan, Patterson, Raiten, Rinke
Affiliate Professors: Hansen, Heald
Affiliate Assistant Professor: McKenna
Visiting Professor: Winick

The area of human nutrition and food systems offers many diverse professional opportunities. Courses introduce the student to the principles of selection, preparation, and utilization of food for human health and the welfare of society. Emphasis is placed on the scientific, cultural, and professional aspects of this broad area of food and nutrition. The department offers four areas of emphasis: dietetics, experimental foods, foodservice administration, and human nutrition and foods. Each program provides for competencies in several areas of work, however, each option is designed specifically for certain professional careers.

DEPARTMENT MAJORS: The *Dietetics* major develops an understanding and competency in food, nutrition, and management as related to problems of dietary departments and delivery of nutritional care. Nutrition education and community nutrition are included in this program. The Dietetics program is approved by the American Dietetic Association. The *Experimental Foods* major develops competency in food science and food-related behavior. Physical, chemical and biological sciences in relation to food are emphasized. The program is designed for students interested in product development, quality control, consumer concerns and technical research in foods. *Foodservice Administration* emphasizes the administration of quantity food services in elementary and secondary schools, colleges, restaurants, health care facilities and corporate cafeterias. The *Human Nutrition and Foods* major emphasizes the physical and biological sciences in relation to nutrition and the development of laboratory skills in these areas. Students in this major frequently elect to go on to graduate or medical school.

Each of these courses of study includes a set of major subject courses offered primarily within the department, plus supporting courses taken outside the department. To graduate, students must also meet the requirements of the campus (e.g., those specified in the University Studies Program) and the College of Human Ecology.

Grades: All students are required to earn a C grade or better in all courses applied toward satisfaction of the major. This includes all required courses with a prefix of FOOD, NUTR, and FSAD as well as certain required courses in supporting fields. A list of these courses for each program may be obtained from the department office.

Program Requirements

I. Dietetics

a. Major Subject Courses	
NUTR 100 — Elements of Nutrition	3
or	
NUTR 200 — Nutrition for Health Services	
NUTR 330 — Nutritional Biochemistry	3
NUTR 440 — Advanced Human Nutrition I	4
NUTR 450 — Advanced Human Nutrition II	4
NUTR 460 — Therapeutic Human Nutrition	4
NUTR 470 — Community Nutrition	3
NUTR 475 — Dynamics of Community Nutrition	3
FOOD 240 — Science of Food I	3
FOOD 250 — Science of Food II	3
FSAD 300 — Foodservice Organization and Management	3

FSAD 350 — Foodservice Operations I
FSAD 390 — Introduction to Foodservice Budgeting 1
FSAD 440 — Foodservice Personnel Administration 2
Subtotal 41

b. Supporting Courses
MATH 110 — Elementary Mathematical Models 3
or
MATH 115 — Pre-Calculus
CHEM 103 — General Chemistry I 4
CHEM 113 — General Chemistry II 4
CHEM 233 — Organic Chemistry I 4
BIOL 105 — Principles of Biology I 4
ZOOL 202 — Human Anatomy & Physiology II 4
MICB 200 — General Microbiology 4
SPCH 100 — Basic Principles of Speech Communication 3
or
SPCH 107 — Technical Speech Communication
SOCY 100 — Introduction to Sociology 3
PSYC 100 — Introduction to Psychology 3
ECON 205 — Fundamentals of Economics 3
EDMS 451 — Introduction to Educational Statistics 3
or
BIOM 301 — Introduction to Biometrics
ENGL 101 — Introduction to Writing 3
ENGL 391 — Advanced Composition 3
or
ENGL 393 — Technical Writing
University Studies Program Courses 18
Human Ecology Courses 6
Electives 7
Subtotal 79

Total Credits 120

II. Experimental Foods
a. Major Subject Courses
FOOD 240 — Science of Food I 3
FOOD 250 — Science of Food II 3
FOOD 440 — Advanced Food Science I 3
FOOD 445 — Advanced Food Science Laboratory 1
FOOD 450 — Advanced Food Science II 3
NUTR 100 — Elements of Nutrition 3
FDSC 412 — Principles of Food Processing I 3
or
FDSC 413 — Principles of Food Processing II
FDSC 422 — Food Product Research & Development 3
FDSC 430 — Food Microbiology 2
FDSC 434 — Food Microbiology Laboratory 2
ENAG 414 — Mechanics of Food Processing 4
Subtotal 30

b. Supporting Courses
MATH 115 — Pre-Calculus 3
MATH 220 — Elementary Calculus I 3
CHEM 103 — General Chemistry I 4
CHEM 113 — General Chemistry II 4
CHEM 233 — Organic Chemistry I 4
CHEM 243 — Organic Chemistry II 4
PHYS 121 — Fundamentals of Physics I 4
BIOL 105 — Principles of Biology I 4
BCHM 261 — Elements of Biochemistry 3
MICB 200 — General Microbiology 4
ENGL 101 — Introduction to Writing 3
ENGL 393 — Technical Writing 3
PSYC 100 — Introduction to Psychology 3
SOCY 100 — Introduction to Sociology 3
ECON 205 — Fundamentals of Economics 3
BIOM 301 — Introduction Biometrics 3
or
BIOM 401 — Biostatistics I (4)
SPCH 100 — Basic Principles of Speech Communication 3
or
SPCH 107 — Technical Speech Communication
University Studies Program Courses 18
Human Ecology Courses 6
Electives 8
Subtotal 90

Total Credits 120

III. Foodservice Administration
a. Major Subject Courses
FSAD 300 — Foodservice Organization and Management 3
FSAD 350 — Foodservice Operations I 5
FSAD 355 — Foodservice Operations II 4
FSAD 415 — Foodservice Cost Accounting 3
FSAD 440 — Foodservice Personnel Administration 2
FSAD 450 — Foodservice Equipment Planning 3
FSAD 455 — Manpower Planning for Foodservice 3
FSAD 480 — Practicum in Foodservice Administration 3
or
FSAD 490 — Special Problems in Foodservice
FOOD 240 — Science of Food I 3
FOOD 250 — Science of Food II 3
FOOD 300 — Economics of Food Consumption 3
NUTR 200 — Nutrition for Health Services 3
NUTR 470 — Community Nutrition 3
Subtotal 41

b. Supporting Courses
MATH 110 — Elementary Mathematical Models 3
or
MATH 115 — Pre-Calculus
CHEM 103 — General Chemistry I 4
CHEM 104 — Fundamentals of Organic & Biochemistry 4
BIOL 105 — Principles of Biology I 4
MICB 200 — General Microbiology 4
ZOOL 202 — Human Anatomy & Physiology II 4
ECON 205 — Fundamentals of Economics 3
BMGT 220 — Principles of Accounting I 3
BMGT 362 — Labor Relations 3
or
ECON 370 — Labor Markets, Human Resources, and Trade Unions 3
Data Processing or Statistics 3
SPCH 100 — Basic Principles of Speech Communication
or
SPCH 107 — Technical Speech Communication 3
SOCY 100 — Introduction to Sociology 3
PSYC 100 — Introduction to Psychology 3
ENGL 101 — Introduction to Writing 3
ENGL 391 — Advanced Composition 3
or
ENGL 393 — Technical Writing
University Studies Program Courses 18
Human Ecology Courses 6
Electives 5
Subtotal 79

Total Credits 120

IV. Human Nutrition and Food
a. Major Subject Courses
NUTR 100 — Elements of Nutrition 3
or
NUTR 200 — Nutrition for Health Services
NUTR 440 — Advanced Human Nutrition I 4
NUTR 450 — Advanced Human Nutrition II 4
FOOD 240 — Science of Food I 3
FOOD 250 — Science of Food II 3
FOOD 440 — Advanced Food Science I 3
FOOD 445 — Advanced Food Science Laboratory 1
Subtotal 21

b. Supporting Courses
MATH 115 — Pre-Calculus 3
MATH 220 — Elementary Calculus I 3
CHEM 103 — General Chemistry I 4
CHEM 113 — General Chemistry II 4
CHEM 233 — Organic Chemistry I 4
CHEM 243 — Organic Chemistry II 4
ZOOL 211 — Cell Biology and Physiology 4
ZOOL 422 — Vertebrate Physiology 4
PHYS 121 — Fundamentals of Physics I 4
BCHM 461 — Biochemistry I 3
BCHM 463 — Biochemistry Laboratory I 2
MICB 200 — General Microbiology 4
BIOM 301 — Introduction to Biometrics 3
ENGL 101 — Introduction to Writing 3
ENGL 393 — Technical Writing 3
PSYC 100 — Introduction to Psychology 3
SOCY 100 — Introduction to Sociology 3
SPCH 100 — Basic Principles of Speech Communication 3
or
SPCH 107 — Technical Speech Communication 3
ECON 205 — Fundamentals of Economics 3
University Studies Program Courses 18
Human Ecology Courses 6
Electives 9
Subtotal 100

Total 121

Advising. Departmental advising is mandatory. Students should consult the current *Undergraduate Catalog* and also see an appropriate departmental advisor when planning their course of study. Information on advising may be obtained by calling the department office at 454-2139.

Financial Assistance. The Department has collaborative arrangements for hourly employment with nearby government agencies and can provide suggestions for a wide variety of opportunities in hospitals, industry, and other locations. Call 454-2139 for more information.

Honors and Awards. The HNFS Department offers yearly awards for Outstanding Sophomore, Outstanding Junior, Outstanding Senior, Outstanding Graduate Student, Outstanding Returning Student, Outstanding Self-Supporting Student, and a Special Departmental Award. Call 454-2139 for more information.

Student Organizations. The HNFS Department has an active undergraduate club which does a number of outreach activities, sponsors speakers on career-related topics, and participates in a variety of social activities. Call 454-2139 for more information.

Course Code Prefixes: FOOD, FSAD, NUTR.

Industrial, Technological and Occupational Education (EDIT)

College of Education

Room 3216, J.M. Patterson Building, 454-4264

Associate Professor and Acting Chair: Beatty
Professors: Hornbake (Emeritus), Luetkemeyer, Maley (Emeritus)
Associate Professors: Anderson, Beatty, Herschbach, Hultgren, Mietus, Peters, Stough, Sullivan
Assistant Professors: Boyce, Elkins, Hunter, Usiak
Instructors: Ashley, Jones, Mason, McLaughlin, Milligan, Mosser, Smith, Spear, Strenge

The Department of Industrial, Technological and Occupational Education offers programs leading to teacher certification and degrees in five different fields of teacher preparation. A sixth field of study, industrial technology, is designed to prepare individuals for supervisory and management positions in industry, business, and government. In addition, a technical education program is available for persons with advanced technical preparation who wish to teach in technical institutes or community colleges.

The five curricula administered by the department include (1) business education; (2) home economics education; (3) industrial arts/technology education; (4) industrial technology, (5) vocational-technical education. Undergraduate and graduate programs leading to the degrees of Bachelor of Science, Master of Education, Advanced Graduate Specialist, Master of Arts, Doctor of Education, and Doctor of Philosophy are available.

Advising. Advising is mandatory. Advisors are located in the J.M. Patterson Building. Call the department for additional information.

Business Education

Two curricula are offered for preparation of teachers of business subjects: General Business and Secretarial Education. The general business education curriculum qualifies students for teaching all business subjects except shorthand. Providing thorough training in general business, including economics, this curriculum leads to teaching positions at both junior and senior high school levels.

General Business Education

A program of 124 hours of University credit hours is required for a general business education major. Six hours of electives must be selected from the business field.

University Studies Requirements
Other Academic Support Courses
MATH 111 (3)
SPCH 100, 125 or 220 (3)

Content Courses
BMGT 110 — Introduction to Business and Management (3)
EDIT 114 — Principles of Typewriting (2)
EDIT 115 — Intermediate Typewriting (2)
BMGT 220, 221 — Principles of Accounting I & II (3)
ECON 201, 203 — Principles of Economics I & II (USP Distributive) (3)
EDIT 214 — Office Typewriting Problems (2)
EDIT 215 — Survey of Office Machines (3)
BMGT 380 — Business Law (3)
BMGT 301 — Introduction to Data Processing (3)
BMGT 302 — Information Systems Implementation Techniques (3)
BMGT 350 — Marketing Principles and Organization (3)
EDIT 406 — Word Processing (3)
EDIT 415 — Financial and Economic Education I (3)
EDIT 416 — Financial and Economic Education II (3)

Professional Courses
EDIT 270 — Field Experiences (3)
*EDHD 300S — Human Development and Learning (6)
EDIT 485 — Field Experiences in Business Education (3)
*EDPA 301 — Foundations in Education (3)
*EDIT 340 — Methods of Teaching Office Skills (3)
*EDIT 341 — Curriculum, Instruction and Observation — Business Education (3)
*EDCI 390 — Principles and Methods of Secondary Education (3)
*EDIT 432 — Student Teaching (12)
* Requires Admission to Teacher Education

Secretarial Education

The secretarial education curriculum is adapted to the needs of those who wish to become teachers of shorthand as well as other business subjects. A program of 127 hours of University credit is required for a secretarial education major. Nine hours of electives must be selected from field of business.

University Studies Requirements
Other Academic Support Courses
SPCH 220 — Group Discussion (3)

Content Courses
EDIT 114 — Principles of Typewriting (if exempt, BMGT 110) (2)
EDIT 115 — Intermediate Typewriting (2)
EDIT 116, 117 — Principles of Shorthand I, II (3)
BMGT 220, 221 — Principles of Accounting I & II (3)
ECON 201, 203 — Principles of Economics I & II (USP Distributive) (3)
EDIT 214 — Office Typewriting Problems (2)
EDIT 215 — Survey of Office Machines (3)
EDIT 216 — Advanced Shorthand and Transcription (3)
EDIT 304 — Administrative Secretarial Procedures (3)
BMGT 380 — Business Law (3)
EDIT 406 — Word Processing (3)
EDIT 405 — Business Communications (3)
BMGT 301 — Introduction to Data Processing (3)

Professional Courses
EDIT 270 — Field Experiences in Education for Business and Industry (3)
*EDHD 300S — Human Development and Learning (6)
*EDPA 301 — Foundations of Education (3)
EDIT 485 — Field Experiences in Business Education (3)
*EDIT 340 — Methods of Teaching Office Skills (3)
*EDIT 341 — Curriculum, Instruction and Observation — Business Education (3)
*EDCI 390 — Principles and Methods of Secondary Education (3)
*EDIT 432 — Student Teaching (12)

*Requires Admission to Teacher Education

Home Economics Education

The home economics curriculum is designed for students who are preparing to teach home economics and includes study in each area of home economics and of the supporting disciplines.

A major in Home Economics Education requires 128 University credit hours. The major is an intensive program which includes required courses in academic support, content, and professional areas. A nine-hour area of concentration designed to give the student expertise in some special facet of home economics must be completed with the approval of an advisor. No upper level credits can be attempted until a student has earned a minimum of fifty-six credits.

University Studies Program Requirements
Other Academic Support Courses
CHEM 103 (4)
SPCH 100, 107 or 125 (3)
PSYC 100 — Introduction to Psychology (3)
SOCY 100 — Introduction to Sociology (3)
BIOL 101 — Concepts of Biology (3)
ECON 205 — Fundamentals of Economics (3)

Content Courses
TEXT 205 — Intro. to Textile Materials or
TEXT 105 — Textiles in Contemporary Living (3)
NUTR 100 — Elements of Nutrition (3)
APDS 101 — Fundamentals of Design or
ARTE 101 — INtroduction to Art Education (3)
FMCD 250 — Decision-Making in Family Living (3)
HSAD 240 — Design and Furnishings in the Home (3) or
HSAD 251 — Family Housing (3)

EDHD 411 — Child Growth and Development (3)
FOOD 210 — Scientific Principles of Food Preparation and Management (4)
TEXT 211 — Apparel or TEXT 222 — Apparel II (3)
FMCD 330 — Family Patterns or FMCD 105 (3)
SOCY 443 — The Family and Society or FMCD 441 (3)
FMCD 445 — Family and Household Management (3)

Professional Courses
EDIT 207 — Bases for Curriculum Decisions in Home Economics (3)
*EDHD 300 — Human Development and Learning (6)
EDIT 435 — Curriculum Development in Home Economics (3)
EDIT 436 — Field Experience in Analysis of Child Development Lab (3)
*EDPA 301 — Foundations of Education (3)
EDIT 493 — Home Economics for Special Need Learners or
EDSP 470 — Introduction to Special Education (3)
*EDCI 390 — Principles and Methods of Secondary Education (3)
EDIT 342 — Curriculum, Instruction, and Observation — Home Economics (3)
EDIT 442 — Student Teaching in Secondary Schools — Home Economics (12)

* Requires Admission to Teacher Education

Industrial Arts/Technology Education

This industrial arts/technology education curriculum prepares persons to teach industrial arts/technology education at the middle and secondary school level. It is a four-year program leading to a Bachelor of Science degree. While trade or industrial experience contributes significantly to the background of the industrial arts/technology education teacher, previous work experience is not a condition of entrance into this curriculum. Students who are enrolled in the curriculum are encouraged to obtain work in industry during the summer months. Industrial arts/technology education as a middle and secondary school subject area is a part of the general education program characterized by extensive laboratory experiences.

To obtain a bachelor's degree in Industrial Arts Education, a student must complete 128 hours of University credit. The major is intensive and involves required courses in academic support, content, and professional areas. Eight hours of elective credit should be taken with the advice of the advisor. No upper level credits can be attempted until a student has earned a minimum of fifty-six credits.

University Studies Program Requirements
Other Academic Support Courses
CHEM 102 or 103 (4)
SPCH 100 (3)
PHYS 111 or 112 (3)
ECON 205

Content Courses
EDIT 101 — Mechanical Drawing I (2)
EDIT 102 — Fundamentals of Woodworking (3)
EDIT 112 — Technical Calculations (3)
EDIT 262 — Basic Metal Machining (3)
EDIT 121 — Mechanical Drawing II (2)
EDIT 202 — Machine Woodworking (3)
EDIT 127 — Fundamentals of Electricity — Electronics (3)
EDIT 233 — Fundamentals of Power Technology (3)
EDIT 241 — Architectural Drawing (2)
EDIT 227 — Applications of Electronics (3)
EDIT 223 — Arc and Gas Welding (1)
EDIt 210 — Foundry (1)
EDIT 226 — Fundamental Metal-Working Processes (3)
EDIT 234 — Graphic Communications (3)

Professional Courses
EDIT 270 — Field Experience (3)
*EDHD 300 — Human Development and Learning (6)
*EDPA 301 — Foundations of Education (3)
EDIT 311 — Lab Practicum in Industrial Arts (3)
*EDCI 390 — Principles and Methods of Secondary Education (3)
EDIT 344 — Curriculum, Instruction and Observation (3)
*EDIT 422 — Student Teaching (12)
EDIT 450 — Training Aids Development (3)
EDIT 464 — Laboratory Organization and Management (3)
EDIT 466 — Educational Foundations of Industrial Arts (3)

* Requires Admission to Teacher Education

Industrial Technology

The industrial technology curriculum is a four-year program leading to a Bachelor of Science degree. The purpose of the program is to prepare persons for jobs within industry. It embraces four major areas of competence: (a) technical competence; (b) human relations and leadership competence; (c) communications competence; and (d) social and civic competence.

To obtain a bachelor's degree in Industrial Technology, a student must complete 128 hours of University credit. The program involves required courses in academic support and content areas. Twenty-four hours of electives should be selected to create a concentration in one of the following areas:

Production and Manufacturing
Industrial Safety
Industrial Training and Human Resource Development
Fire Science and Industrial Safety
Specific Technical Specialty

No upper level credits can be attempted until a student has earned a minimum of fifty-six credits.

University Studies Program Requirements
Other Academic Support Courses
PSYC 100 (3)
SPCH 107 (3)
MATH 111 or MATH 220 (3)
PHYS 111 (3)
CHEM 102 or CHEM 103 (4)
ECON 205 (3)
PHYS 112 (3)

Content Courses
EDIT 262 — Basic Metal Machining (3)
EDIT 101 — Mechanical Drawing I (2)
EDIT 112 — Technical Calculations or EDIT Elective (3)
EDIT 121 — Mechanical Drawing II (2)
EDIT 210 — Foundry (1)
EDIT 223 — Arc and Gas Welding (1)
CMSC 103 — Intro. to Computing for Non-Majors or
CMSC 110 — Introductory Computer Programming (3/4)
EDIT 127 — Fundamentals of Electricity Electronics (3)
EDIT 291 — Introduction to Plastics Technology (3)
EDIT 224 — Organized and Supervised Work Experience (3)
PSYC 361 — Industrial Psychology (3)
EDIT 443 — Industrial Safety Education I (3)
EDIT 465 — Modern Industry (3)
EDIT 226 — Fundamental Metalworking Processes or
EDIT 233 — Fundamentals of Power Technology or
EDIT 234 — Graphic Communications (3)
BMGT 360 — Personnel Management (3)
EDIT 444 — Industrial Safety Education II (3)
EDIT 425 — Analysis of Industrial Training Programs I (3)
EDIT 324 — Organized & Supervised Work Experience (3)
BMGT 362 — Labor Relations (3)
BMGT 385 — Production Management or approved BMGT Elect. (3)
EDIT 360 — Industrial Production Technology or approved BMGT Elective (3)

Marketing and Distributive Education

A major in Marketing and Distributive Education requires 126 hours of University credit. The major is an intensive program involving required courses in academic support, content, and professional areas. Twenty-one hours of electives must be chosen from the business field. No upper level credits can be attempted until a student has earned a minimum of fifty-six credits.

University Studies Program Requirements
Other Academic Support Courses
SPCH 100, 125 or 220 (3)

Content Courses
BMGT 110 — Business Enterprise (3)
ECON 201 — Principles of Economics I (3)
ECON 203 — Principles of Economics II (3)
BMGT 220 — Principles of Accounting I (3)
BMGT 221 — Principles of Accounting II (3)
BMGT 354 — Promotion Management (3)
BMGT 350 — Marketing Management (3)
BMGT 360 — Personnel Management I (3)
BMGT 353 — Retailing (3)
BMGT 380 — Business Law (3)
EDIT 486 — Field Experience (3)
BMGT 455 — Sales Management (3)

Professional Courses
*EDHD 300S — Human Development and Learning (6)
EDPA 301 — Foundations of Education (3)
EDIT 414 — Organization and Coordination of Distributive Education Programs (3)
EDIT 343 — Curriculum, Instruction and Observation (3)
*EDCI 390 — Principles and Methods of Secondary Education (3)
*EDIT 452 — Student Teaching (12)

* Requires Admission to Teacher Education

Vocational-Technical Education

The vocational-technical programs may lead either to certification as a vocational-industrial teacher with no degree involved or to a Bachelor of Science degree, including certification. The University of Maryland is designated as the institution which shall offer the "Trades and Industries" certification courses. The courses offered are those required for certification in Maryland. The vocational-technical curriculum requires trade competence as specified by the Maryland State Plan for Vocational-Industrial Education. A person who aspires to be certified should review the state plan and contact the Maryland State Department of Education. If the person has in mind teaching in a designated school system, he or she may discuss his or her plans with the vocational-industrial education representative of that school system inasmuch as there are variations in employment and certification requirements.

Vocational-Technical Degree Program

The vocational-technical curriculum is a four-year program of studies leading to a Bachelor of Science degree in education. It is intended to develop the necessary competencies for the effective performance of the tasks of a vocational or occupational teacher.

To obtain a bachelor's degree in Vocational-Technical Education, a student must complete 128 hours of University credit. The major is intensive and involves required courses in academic support, content, and professional areas. Five hours of elective credit should be taken with the advice of an advisor. An additional twelve credits of electives are included if student has been exempted from study teaching on the basis of prior experiences.

Persons pursuing this curriculum must present documentary evidence of having an apprenticeship or comparable learning period and journeyman experience. This evidence of background and training is necessary in order that the trade examination phase of the curriculum may be accomplished. If sufficient trade experience is unavailable, such experience must be completed while pursuing the degree. Twenty semester hours of credit toward the degree are granted upon satisfactory completion of the trade competency examination.

Persons having completed the necessary certification courses prior to working on the degree program may use such courses toward meeting graduation requirements. However, after certification course requirements have been met, persons continuing studies toward a degree must take courses in line with the curriculum plan and University regulations. For example, junior level courses may not be taken until the student has reached full junior standing.

University Studies Program Requirements
Other Academic Support Courses
SPCH 100 (3)
ECON 205 (3)
MATH 115 (3)
PSYC 100 (3)
CHEM 103 (4)

Content Courses
EDIT 112 — Technical Calculations (3)
EDIT 465 — Modern Industry (3)

Professional Courses
EDIT 270 — Field Experience (3)
*EDHD 300 — Human Development and Learning (6)
EDIT 462 — Occupational Analysis and Course Construction (3)
EDIT 450 — Training Aids Development (3)
EDIT 471 — Principles and History of Vocational Education (3)
EDIT 457 — Tests and Measurements (3)
EDIT 350 — Methods of Teaching (3)
*EDCI 390 — Principles and Methods of Secondary Education (3)
EDIT 482 — Student Teaching* (12)
EDIT 461 — Principles of Vocational Guidance (3)
EDIT 499 — Coordination of Co-op Work Experience (3)
*EDPA 301 — Social Foundations of Education (3)
EDIT 464 — Laboratory Organization and Management (3)

* Requires Admission to Teacher Education

Elective courses in the technical area (shop and drawing) will be limited to courses and subjects not covered in the trade training experience. Courses dealing with advanced technology and recent improvements in field practices will be acceptable.

Vocational-Industrial Certification

To become certified as a trade industrial and service occupations teacher in the State of Maryland a person must successfully complete eighteen credit hours of instruction plus a three credit course in special education or mainstreaming.

The following courses must be included in the eighteen credit hours of instruction.

Option 1
EDIT 350 — Methods of Teaching (3)
EDIT 464 — Laboratory Organization and Management (3)
EDIT 457 — Tests and Measurements (3)
EDIT 462 — Occupational Analysis and Course Construction (3)
The remainder of the credit hours shall be met through the election of any two of the seven courses or completing one of the options.
EDCP 411 — Mental Hygiene (3)
EDIT 450 — Training Aids Development (3)
EDIT 461 — Principles of Vocational Guidance (3)
EDIT 465 — Modern Industry (3)
EDIT 467 — Problems in Occupational Education (3)
EDIT 471 — History and Principles of Vocational Education (3)
EDIT 499D — Workshop in Vocational Education (3)
Option 2.
EDHD 300 — Human Growth and Development (6)
Option 3
PSYC 100 — Introduction to Psychology (3)
EDHD 360 — Educational Psychology (3)

A person in vocational-technical education may use his or her certification courses toward a Bachelor of Science degree. A maximum of twenty semester hours of credit may be earned through examination in the trade in which the student has competence. Prior to taking the examination, the student shall provide documentary evidence of his or her apprenticeship or learning period and journeyman experience. For further information about credit examination refer to the academic regulations or consult with the department staff.

Course Code Prefix: EDIT

Jewish Studies Program

College of Arts and Humanities

2106 Jimenez Hall, 454-7251/4307

Associate Professor and Director: Adele Berlin
Professors: Beck, Berlin, Goodblatt
Associate Professors: Bilik, Handelman, Rozenblit
Assistant Professors: Diner, Manekin
Instructors: Levy, Liberman

The Jewish Studies major provides undergraduate students with a framework for organized and interdisciplinary study of the history, philosophy, and literature of the Jews from antiquity to the present. Jewish Studies draws on a vast literature in a number of languages, especially Hebrew and Aramaic and includes the Bible, the Talmud, medieval and modern Hebrew literature. Yiddish language and literature comprise an important sub-field.

The undergraduate major requires forty-eight semester hours (twenty-seven hours minimum at 300-400 level) consisting of courses in the Hebrew Program and the History Department as well as other courses in the Departments of Germanic and Slavic Languages and Literatures, English, Geography, Philosophy, and Sociology.

A minimum grade of C is required in all courses offered toward major requirements. A major in Jewish Studies will normally conform to the following curriculum:

1. Prerequisite: HEBR 111, 112, 211, 212 (or placement exam)
2. Required coures: HEBR 313, 314, HIST 282, 283, and either HIST 309 or research-oriented course in Hebrew approved by advisor (at 300 level or above); two upper-level courses in Hebrew literature and one upper-level course in Jewish history (twenty-four credit hours)
3. Electives: twelve credits in Jewish Studies courses in Hebrew language and literature, Jewish history and Yiddish language and literature. At least nine credits must be at the 300-400 level.
4. Nine credits of supporting courses in areas outside Jewish Studies such as history, sociology, philosophy, psychology or literature, including at least six credits at the 300-400 level, to be selected with the approval of a faculty advisor.

Journalism (JOUR)

College of Journalism

For information, see College of Journalism entry.

Linguistics Program (LING)

College of Arts and Humanities

1109 Mill Building, 454-7002

Professor and Director: Lightfoot
Associate Professor: Hornstein
Assistant Professor: Gorrell, Lebeaux, Weinberg, Uriagereka
Affiliate: Gasarch

The Linguistics Program offers courses on many aspects of language study and an interdisciplinary major leading to a Bachelor of Arts. Language is basic to many human activities and linguistics relates to many other disciplines which include work on language.

Work on language has provided one of the main research probes in philosophy and psychology for most of the 20th century. It has taken on a new momentum in the last twenty-five to thirty years and language research has proven to be a fruitful means to cast light on the nature of the human mind and on general cognitive capacity. Several courses focus on a research program which takes as a central question: How do children master their native language? Children hear many styles of speech, variable pronunciations and incomplete expressions, but, despite this flux of experience, they come to speak and understand speech effortlessly, instantaneously and subconsciously. Research aims to discover how this happens, how a person's linguistic capacity is represented in the mind, and what the genetic basis for it is. Students learn how various kinds of data can be brought to bear on their central question, how that question influences the shape of technical analyses.

The major program in Linguistics is designed for students who are primarily interested in human language per se, or in describing particular languages in a systematic and psychologically plausible way, or in using language as a tool to reveal some aspect of human mental capacities. Such a major provides useful preparation for professional programs in foreign languages, language teaching, communication, psychology, speech pathology, artificial intelligence (and thus computer work).

Major Requirements. Students obtain a Bachelor of Arts in Linguistics by following one of two tracks: "Grammars and Cognition" or "Grammatical Theory and Language." In each case, students take a common core of LING courses: LING 200, 240, 311-312, 321-322. Beyond this core, students must specialize by completing an additional nine hours in LING plus one of the following either eighteen hours from selected courses in HESP, PHIL and PSYC, or eighteen hours in a particular language. The specializations in detail are:

Grammars and Cognition
LING 440 — Grammars and Cognition
Two 300/400 LING electives
PHIL 466 — Philosophy of Mind
HESP 400 — Speech and Language Development in Children
OR
HESP 498 — Seminar in Psycholinguistics
PSYC 440 — Introduction to Cognitive Psychology
OR
PSYC 422 — Psychology of Language
Three 300/400 electives in HESP, PHIL, PSYC or CMSC

Grammatical Theory and a Language
LING 410 — Grammars and Meaning and LING 411 — Comparative Syntax
OR
LING 420 — Word Formation and LING 412 — Advanced Phonology
LING 300/400 elective
Five required courses in the language of specialization.
A course in the history or structure of the language of specialization.

When possible, the language of specialization should be the same as the one used to satisfy the college Foreign Language Requirement. The specialization normally includes those courses that make up the designated requirement for a major in the chosen language. Special provision may be made for students who are native speakers of a language other than English and wish to conduct analytical work on the grammar of that language. A student may also study grammatical theory and English; the eighteen hour concentration in English consists of courses in the history and structure of English to be selected in consultation with the student's Linguistics advisor.

For a double major, students need twenty-seven credits in Linguistics, which normally include the LING courses for one of the two specializations.

Course Code Prefix — LING

Management and Organization

For information, see College of Business and Management entry

Management Science and Statistics

For information, see College of Business and Management entry

Marketing

For information, see College of Business and Management entry

Mathematics (MATH)

College of Computer, Mathematical and Physical Sciences

3207 Mathematics Building, 454-2834
Undergraduate Office: 454-2746

Professor and Chair: Markley
Professors: W. Adams, Alexander, Antman, Auslander, Babuska***, Benedetto, Berenstein, Brin, Chu, J. Cohen, Cook, Copper, Correl, Douglis, Edmundson*, Ehrlich, Evans, Fey**, Fitzpatrick, Freidlin, Goldberg, Goldhaber, Good, Gray, Greenberg, Grove, Gulick, Herb, Horvath, Hubbard***, Hummel, Johnson, Kellogg***, King, Kirwan, Kleppner, Kuda, Kueker, Lay, Lehner, Lipsman, Liu, Lopez-Escobar, Mikulski, Neri, Olver***, Osborn, Owings, Pearl, Rosenberg, Rudolph†, Schafer, Sweet, Syski, Washington, Wei, Wolfe, Wolpert, G. Yang, Yorke***, Zagier, Zedek
Associate Professors: Arnold, Berg, Dancis, Ellis, Glaz, Goldman, Green, Hamilton, Helzer, Jones, Kedem, Sather, Schneider, Slud, Smith, Vogelius, Warner, Winkelnkemper
Assistant Professors: J. Adams, Boyle, Chang, Currier, Fakhre-Zakeri, Grillakis, Maddocks, Nochetto***, Stuck, Wang
Professors Emeriti: Brace, L. Cohen, Heins, Jackson, Stellmacher
Affiliate Professors: Stewart, Young
Affiliate Associate Professor: O'Leary
Instructors: Alter, Cleary

* Joint Appointment: Department of Computer Science
** Joint Appointment: Department of Curriculum and Instruction
*** Joint Appointment: IPST
† Distinguished Scholar-Teacher

The program in mathematics leads to a degree of Bachelor Science in mathematics and offers students training in mathematics and statistics in preparation for graduate work, teaching, and positions in government or industry. A student intending to major in mathematics should complete the introductory sequence MATH 140, 141, 240, 241 or the corresponding honors sequence MATH 250, 251, and should have an average grade of at least B and no grade less than C in these courses.

Each mathematics major will complete with a grade of C or better the following:

1. CMSC 112-113 or CMSC 110 or ENES 240 or a CMSC course having CMSC 110 or 113 as a prerequisite.
2. MATH 256, or an upper level MATH/MAPL course having CMSC 110 as a prerequisite.
3. Eight MATH/MAPL/STAT courses at the 400 level or above, at least four of which are taken at College Park. The eight courses will include:
   (a) MATH 410-411 (Students successfully completing MATH 250-251 are exempted from MATH 410-411 and receive credit for two upper level courses.)
   (b) One course from among MATH 401, MATH 405, or MAPL 471, or the sequence MAPL 466-467.
   (c) One course from among MATH 414, MATH 415, MATH 462, MATH 436, or MATH 246. If MATH 246 is chosen, it will not count as one of the eight upper-level courses.
   (d) The remaining 400 level MATH/MAPL/STAT courses are electives, but cannot include any of the following: MATH 400, 461, 478 through 488, or STAT 464. EDCI 451 may be used to replace one of the elective upper level mathematics courses.

Undergraduate Math/Stat Majors with interest in applied mathematics are permitted with the approval of the Undergraduate Office to substitute two courses (with strong mathematics content) from outside the Department of Mathematics for one of the elective upper-level mathematics courses. With the approval of an advisor, the qualified student may substitute appropriate 600 or 700 level courses for 400 level mathematics courses.

4 In order to broaden the student's mathematical experience, each Math/Stat major must complete, with a grade of C or better, a course sequence in a supporting area Other sequences may be considered, on a case-by-case basis, by the Undergraduate Chair. However, any sequence to be approved, which does not appear in this list must make substantial use of mathematics, comparable to the sequences on this list.
   (a) *Physics.* One of the following sequences:
   PHYS 161, 262, 263 (or ASTR 200) — engineering sequence
   PHYS 171, 272, 273 (or ASTR 200) — physics major sequence
   PHYS 141, 142, and an upper level course approved by the Department of Mathematics
   (b) ENES 110, PHYS 161, ENES 220
   (c) *Computer Science.* CMSC 112, 113, and any group of three courses (3-credit) from CMSC 211-477 that does not include CMSC 250, CMSC 400 or any CMSC courses cross-listed with mathematics. The three courses might include.
   CMSC 211 or 220, 311, 411 or 412 (aimed toward computer systems)
   CMSC 220, 420, 424 or 426 (aimed toward information processing)
   CMSC 330, 430, 432 or 435 (aimed toward program languages)
   CMSC 211 or 220, 311 and 330 (most general CMSC courses)
   (d) CHEM 103, 113, 233
   (e) *Economics.* ECON 201, 203, and two of the following (including one of ECON 405, 406): ECON 402, 405, 406, 431, 440, 441
   (f) *Business.* ECON 201 or 205 and any three of the following:
   BMGT 220, 221, 340, 431, 434, 435
   (For business supporting area, MATH 411 can be replaced by STAT 410, provided one of the following courses is included among the eight 400-level math courses: STAT 411, 420, 450, MAPL 477.)

Within the Department of Mathematics there are a number of identifiable areas which students can pursue to suit their own goals and interests They are briefly described below. Note that they do overlap and that students need not confine themselves to one of them.

1. Pure mathematics: the courses which clearly belong in this area are: MATH 402, 403, 404, 405, 406, 410, 411, 414, 415, 417, 430, 432, 433, 436, 444, 446, 447, 450; STAT: 410, 411, 420. Students preparing for graduate school in mathematics should include MATH 403, 405, 410 and 411 in their programs. MATH 463 (or 660) and MATH 432 (or 730) are also desirable. Other courses from the above list and graduate courses are also appropriate
2. Secondary teaching: the following courses are required to teach mathematics at the secondary level: MATH 402 or 403, 430 and EDCI 451. (EDCI 451 is acceptable as one of the eight upper level math courses required for a mathematics major.) These additional courses are particularly suited for students preparing to teach: MATH 406, 444, 463, STAT 400 and 401. EDHD 300, EDPA 301, EDCI 350 or 455, and EDCI 390 are necessary to teach; before registering for these courses, the student must apply for and be admitted to teacher education.
3. Statistics For a student with a Bachelor of Arts seeking work requiring some statistical background, the minimal program is STAT 400-401. To work primarily as a statistician, one should combine STAT 400-401 with at least two more statistics courses, most suitably, STAT 450 and STAT 440. A stronger sequence is STAT 410, 420, 450. This offers a better understanding and wider knowledge of statistics and is a general purpose program (i.e., does not specify one area of application). For economics applications STAT 400, 401, 440, 450, and MAPL 477 should be considered. For operations research MAPL 477 and/or STAT 411 should be added or perhaps substituted for STAT 450. To prepare for graduate work, STAT 410 and 420 give the best background, with STAT 411, 421, 440, 450, and 460 added at some later stage.
4. Computational mathematics. there are a number of math courses which emphasize the computational aspects of mathematics including the use of the computer They are MAPL 460, 466, 467, 477, and MATH 475. Students interested in this area should take CMSC 112, 113 as early as possible, and CMSC 420, 211 are also suggested
5. Applied mathematics the courses which lead most rapidly to applications are the courses listed above in 3 and 4 and MATH 401, 414, 415, 436, 462, 463, 464 A student interested in applied mathematics should obtain, in addition to a solid training in mathematics, a good knowledge of at least one area in which mathematics is currently being applied Concentration in this area is good preparation for employment in government and industry or for graduate study in applied mathematics

Advising. Advising for math majors is mandatory Students are required to sign up for an advising appointment at the math undergraduate office window (room 1117), beginning the week before preregistration.

Language. Since most of the non-English mathematical literature is written in French, German or Russian, students intending to continue studying mathematics in graduate school should obtain a reading knowledge of at least one of these languages

Honors in Mathematics. The Mathematics Honors Program is designed for students showing exceptional ability and interest in mathematics Its aim is to give a student the best possible mathematical eduction Participants are selected by the Departmental Honors Committee during the first semester of their junior year To graduate with honors in mathematics they must pass a final written and oral comprehensive examination Six credits of graduate work or three credits in a graduate course and three credits of independent study in mathematics approved by the Honors Committee are also required The rest of the program is flexible Independent work is encouraged and can be done in place of formal coursework

The department also offers a special mathematics department honors calculus sequence (MATH 250, 251) for promising freshmen with a strong mathematical background (including calculus). Enrollment in the sequence is normally by invitation but any interested student may apply to the Mathematics Departmental Honors Committee for admission

Participants in the General Honors Program may also enroll in special honors sections of the regular calculus sequence (MATH 140H, 141H, 240H, 241H) They may also enroll in the honors calculus sequence if invited by the Mathematics Departmental Honors Committee However, the mathematics departmental honors calculus sequence and the General Honors Program are distinct, and enrollment in one does not imply acceptance in the other

Neither honors calculus sequence is prerequisite for participating in the Mathematics Honors Program, and students in these sequences need not be mathematics majors.

Awards. Aaron Strauss Scholarships. Up to 2 are awarded each year to outstanding junior Math Majors The recipient receives full remission of (in-state) tuition and fees Applications may be obtained early in the spring semester from the math undergraduate office (room 1117)

Higgibbotham Prize. An award (up to $500) is made to an outstanding senior math major in the spring.

Student Organization. Pi Mu Epsilon. The local chapter of Pi Mu Epsilon, the national honorary mathematics fraternity, meets frequently to discuss mathematical or educational topics of interest to undergraduates. The programs are open to the public.

Placement in Mathematics Courses. The Department of Mathematics has a large offering to accommodate a great variety of backgrounds, interests, and abilities The department permits students to take any course for which the appropriate background regardless of formal coursework For example, students with a high school calculus course may be permitted to begin in the middle of the calculus sequence even if they do not have advanced standing. Students may obtain undergraduate credit for mathematics courses in any of the following ways passing the appropriate CEEB Advanced Placement Examination, passing standardized CLEP examinations, and through the department's Credit-by-Examination. Students are urged to consult with advisors from the Department of Mathematics to assist with proper placements

Statistics and Probability, and Applied Mathematics. Courses in statistics and probability and applied mathematics are offered by the Department of Mathematics These courses are open to non-majors as well as majors, and carry credit in mathematics. Students wishing to concentrate in the above may do so by choosing an appropriate program under the Department of Mathematics

Couse Code Prefixes — MATH, STAT, MAPL

Mathematics Education

Students completing an undergraduate major in astronomy, physics, physical sciences, or in math, or who may be enrolled in the College of Education, may prepare to teach astronomy, physics, physical science, or math. Early contact should be made with either Dr John Layman (astronomy, physics, physical sciences) or Dr James Fey (mathematics). See also the entry on the College of Education in this catalog

Measurement, Statistics and Evaluation (EDMS)

College of Education

Room 4107, Benjamin Building, 454-3747

Professor and Chair: Lissitz
Professors: Dayton, Macready, Stunkard
Associate Professors: Benson, Johnson, Schafer
Assistant Professor: DeAyala

For Advanced Undergraduates and Graduates. The Department of Measurement, Statistics and Evaluation offers courses in measurement, applied statistics, and algorithmic methods for undergraduates. The department is primarily graduate oriented and offers programs at the

master's and doctoral level for person and quantitative interests from a variety of social science and professional backgrounds. In addition, a doctoral minor is offered for students majoring in other areas. The doctoral major is intended primarily to produce individuals qualified to teach courses at the college level in applied measurement, statistics and evaluation, generate original research and serve as specialists in measurement, applied statistics or evaluation in school systems, industry or government. The masters level program is designed to provide individuals with a broad range of data management, analysis and computer skills necessary to serve as research associates in academia, government, and business. At the doctoral level, a student may choose a specialty within one of three areas: applied or theoretical measurement, applied statistics, and program evaluation.

Course Code Prefix — EDMS

Mechanical Engineering (ENME)

College of Engineering

2181 Engineering Classroom Building, 454-2410

Chair: Fourney
Associate Chair: Walston
Professors: Allen (PT), Anand, Armstrong, Berger, Buckley, Cunniff, Dally, Dieter, Durelli (PT), Fourney, Gupta, Holloway, Irwin (PT), Kirk, Koh, Magrab, Marcinkowski, Marks, Sallet, Sanford, Sayre (PT), Shreeve (PT), Talaat, Wallace, Wockenfuss (PT), Yang
Associate Professors: Barker, Bernard, Dick (PT), diMarzo, Krayterman (PT), McCaffrey, Pecht, Shih, Tsai, von Kerczek, Walston
Assistant Professors: Abdelhamid, Anjanappa, Azarm, Bigio, Chen, Choudhury (PT), Dasgupta, Gore, Hammar, Harhalakis, Haslach, Herold, Khan, Minis, Pandelidis, Piomelli, Radermacher, Sirkis, Ssemakula, Tsui, Wilner
Emeriti: Jackson, Shreeve, Weske
Lecturers: Bedewi, Case, Cook, Etheridge, Peltzman, Richter, Wang, Werneth
Research Associates: O'Hara, Pavlin, Zhang

The Mechanical Engineering Major: The primary function of the mechanical engineer is to create devices, machines, structures, or processes which are used to advance the welfare of people. Design, analysis, synthesis, testing, and control are the essential steps in performing this function. Certain aspects of the science and art of engineering are of particular importance to achieve a successful product or service. Some of these aspects are those relating to the generation and transmission of mechanical power, the establishment of both experimental and theoretical models of mechanical systems, computer interfacing, the static and dynamic behavior of fluids, system optimization, and engineering and production management.

There are many career opportunities in all of these areas. In particular, the areas of design, systems analysis, management, consulting, research, maintenance, manufacturing, teaching, and sales offer challenging and rewarding futures. Graduates from the University of Maryland are sought by national and local industries as well as Federal and State agencies and laboratories.

Because of the wide variety of professional opportunities available to the mechanical engineer, the curriculum is designed to provide students with a thorough training in basic fundamentals. These include: physics, chemistry, mathematics, computers, mechanics of solids and fluids, thermodynamics, materials, heat transfer, controls, and design. The curriculum includes basic laboratory courses in fluid mechanics, materials engineering, electronic instrumentation and measurements, and a senior laboratory which provides an introduction to professional research and evaluation procedures. Students are introduced to the concept of design via machine design and energy conversion design courses, and seniors participate in a comprehensive design course during their final semester which is frequently linked with an advisor and a problem from industry. This experience helps students anticipate the type of activities likely to be encountered after graduation and also helps to establish valuable contacts with professional engineers.

In order to provide flexibility for students to follow their own interests in Mechanical Engineering, students may choose to concentrate in either mechanical design or energy design in their senior year. In addition, seniors may choose from a wide variety of elective courses such as courses in robotics, computer-aided design, computer-aided manufacturing, electronic packaging, microprocessor theory, ocean engineering, finite element analysis, heating ventilation and air conditioning, solar energy, combustion, advanced fluid flow, and advanced mechanics, to list only a few. A small number of academically superior undergraduate students are able to participate in Special Topic Problems courses in which a student and faculty member can interact on a one-to-one basis.

Requirements For Major: The Freshman curriculum is the same for all Engineering departments and programs. Please consult The College of Engineering entry.

	Semester Credit Hours	
	I	II
Sophomore Year		
Univ. Studies Req	3	3
MATH 241 — Calculus III	4	
MATH 246 — Differential Equations		3
PHYS 262 — Physics	4	
PHYS 263 — Physics		4
ENES 220 — Mechanics of Materials	3	
ENES 221 — Dynamics		3
ENME 201 — M E Project		1
ENME 205 — Engineering Analysis and Computer Programming	3	
ENME 217 — Thermodynamics	—	3
Total	17	17
Junior Year		
Univ. Studies Req	3	6
ENEE 300 — Elect. Engr	3	
ENEE 301 — E. E. Lab	1	
ENME 310 — Mech. Def. Solids		3
ENME 311 — Def. Solids Lab		1
ENME 315 — Inter. Thermo	3	
ENME 321 — Trans. Proc.		3
ENME 342 — Fluid Mech.	3	
ENME 343 — Fluids Lab	1	
ENME 360 — Dyn. of Mach.	3	
ENME 381 — Meas. Lab	—	3
Total	17	16
Senior Year		
Univ. Studies Req	3	3
ENME 401 — Matl. Sci.	3	
ENME 403 — Auto. Controls	3	
ENME 404 — M. E. Sys. Des.		4
ENME 480 — Engr. Exp.		3
Tech. Elect.		3
Design Tech. Elect.		3
Core Option		
ENME 400	3	
ENME 405	3	
or		
Thermal Fluids		
ENME 405	3	
Design Tech Elect.	3	
or		
Solids-systems		
ENME 400	3	
Design Tech. Elect.	3	
Total	15	16

TECHNICAL ELECTIVE RESTRICTIONS:
Core Option: Two electives; at least one design
Solids Systems: Three electives; at least two design, and at least two from 402, 410, 411, 412, 461, 462, 464, 465, 489F, 489K, 489R, others as approved
Thermal Fluids: Three electives; at least two design, and at least two from 415, 422, 423, 424, 442, 450, 451, 452, 453, 489I, others as approved.

Sample Topics:

Biomedical Engineering	Kinematic Systems of Mechanisms
Engineering Communications	Packaging of Electronic Systems
Ethics and Professionalism	Patent Law
Finite Element Analysis	Reliability and Maintainability
Internal Combustion Engines	Robotics

Admission: Admission requirements are identical to those set by the College of Engineering (see College of Engineering section on Entrance Requirements).

Advising: All mechanical engineering students are required to meet with an advisor during registration. The Undergraduate Advising Office is located in Room 2188 of the Engineering Classroom Building. Telephone: 454-2409.

Financial Assistance: A very limited amount of financial aid is available. Information may be obtained in the Undergraduate Advising Office.

Honors and Awards: The honors program is administered through the College of Engineering. Individual honors and awards are presented based on academic excellence and extracurricular activities.

Student Organizations: Student chapters of professional societies include the American Society of Mechanical Engineers, the Society of Automotive Engineers and the American Production Inventory and Control Society. The mechanical engineering honor society is Pi Tau Sigma. Information regarding these societies may be obtained in Room 2188 of the Engineering Classroom Building.

Course Code Prefix: ENME

Meteorology (METO)

College of Computer, Mathematical, and Physical Sciences

2207 Computer and Space Sciences Building, 454-2708

Professor and Acting Chair: Goldenbaum
Professors: Baer, Faller1, Shukla, Thompson, Vernekar
Associate Professors: Dickerson, Elingson, Pinker, Robock
Assistant Professor: Carton

1Institute for Physical Science and Technology

The Department of Meteorology offers a number of courses of interest to undergraduate students. These courses provide an excellent undergraduate background for those students who wish to do graduate work in the fields of atmospheric and oceanic science, meteorology, air pollution, and other environmental sciences. The interdisciplinary nature of studies in meteorology and physical oceanography assures that all science-oriented students will gain a broadened view of physical science as a whole, as well as the manner in which the sciences may be applied to understand the behavior of our environment.

Undergraduate students interested in pursuing a bachelor's degree program preparatory to further study or work in meteorology are urged to consider the Physical Sciences Program, in which they can specialize in meteorology. It is important that students who anticipate this specialization consult the Physical Sciences Program advisor representing the Department of Meteorology as early as possible in their studies.

Because of its interdisciplinary nature, the study of the atmosphere requires a firm background in the basic sciences and mathematics. To be suitably prepared for 400-level courses in meteorology, the student should have the following background: either the physics major series PHYS 171 — 375 or the series PHYS 161, 262, 263, the mathematics series MATH 140, 141, 240, 241 and either the series CHEM 103, 113 or CHEM 105, 115. See the section on course descriptions for electives in meteorology.

Students who may be preparing for graduate education in meteorology are strongly advised to pursue further coursework from among the areas of physics, applied mathematics, chemistry, computer science, and statistics to supplement coursework in meteorology. With proper counseling from the Department of Meteorology advisor, the student wishing to graduate with an M.S. degree in meteorology may achieve that goal in five years from the inception of university studies.

Course Code Prefix — METO

Microbiology (MICB)

College of Life Sciences

Microbiology Building, 454-2848

Professor and Chair: S. W. Joseph
Professors: Colwell, Cook, Hetrick†, Roberson, Weiner*, Yuan
Associate Professors: MacQuillan, Robb*, Voll
Assistant Professors: Benson, Capage, Stein
Instructor: Smith
Adjunct Professors: Mora, Pearson
Adjunct Associate Professors: Dougherty, White
Emeritus Professors: Doetsch, Faber, Pelczar

† Distinguished Scholar-Teacher
*Joint appointment with Center of Marine Biotechnology

The Microbiology Major

Microbiology is the branch of biology dealing with microscopic lifeforms such as bacteria, yeast, molds, and viruses. As one of the important basic sciences, microbiology is particularly concerned with the principles of host-parasite interactions. From this perspective, microbiologists are helping to solve current world-wide problems in disease control and prevention, food production, and the environment.

The aim of the B.S. program in Microbiology is to provide students with a thorough and rigorous education in molecular genetics, immunology, virology, ecology, pathogenic microbiology and microbial physiology in addition to the basic principles of Microbiology. This background will prepare students for careers in scientific research, business and industry, or in the health-related professions such as medicine and dentistry.

There are many employment opportunities for microbiologists at all levels of education and professional development in government, private industry, and academics. Microbiology is an appropriate undergraduate major for students wishing to pursue a scientific career in such fields as genetic engineering, cancer research, vaccine development, pollution control, production of monoclonal antibodies, discovering new antibiotics and chemotherapeutic agents, developing new fermentation techniques, and controlling AIDS and other viral diseases. In addition, the training received provides the student with all of the core course requirements needed for admission into advanced degree programs and professional programs in dentistry, optometry, podiatry, law, and medicine.

Requirements for the Microbiology Major	*Semester Credit Hours* Semester
University Studies Program Requirements	30
College of Life Sciences Core Requirements	38—40
MICB 200*: General Microbiology	4
MICB 440: Pathogenic Microbiology	4
Additional MICB courses**	16
BCHM 461, 462: Biochemistry I, II	6
Electives	20—22

*A major course that may also be taken to satisfy the University Studies requirement.

**Either of the research problems courses MICB 399 (3 credits) or MICB 388R (1 — 4 credits), but not both, may be included in these sixteen credits, with a maximum of four credits permitted.

Suggested emphasis areas:

Students wishing to pursue a Basic Microbiology major that meets American Society for Microbiology guidelines should complete the following courses: MICB 380; MICB 450; MICB 460, and MICB 470. Electives should be chosen from the following courses: CMSC 103, BIOM 301, ZOOL 211; ZOOL 213.

Students wishing to emphasize Molecular Microbiology should complete the following courses: MICB 380; MICB 388Z, MICB 450, MICB 453, and MICB 470. Electives should be chosen from the following courses: ZOOL 211; ZOOL 213, ZOOL 446; CMSC 103, BIOM 301.

No microbiology course with a grade less than C may be used to satisfy the major requirements. In addition, for graduation the student must achieve an overall C average in the College of Life Sciences core curriculum plus BCHM 461 and 462.

Advising: Students are assigned to a faculty member for advising and career counselling. Information about advising can be obtained from the departmental office (room 1117, telephone 454-2848) or from the advising coordinator (room 3115, telephone 454-5381).

Research Experience and Internships: Students may gain research experience off campus by registering for MICB 388R. Permission is required for registration: contact Dr. S. Joseph for information and permission; call 454-2848 for an appointment. In addition, students may gain research experience on campus working in various faculty laboratories. Students should contact faculty directly to arrange for independent research projects.

Honors and Awards: The Departmental Honors program in Microbiology involves an independent research project undertaken with a faculty advisor. To apply or for information, contact the Honors Chairman, Dr. M. Voll, room 2114, telephone 454-5196. The P. Arne Hansen Award may be awarded to an outstanding departmental honors student. The Sigma Alpha Omicron Award is given annually to the graduating senior selected by the faculty as the outstanding student in Microbiology.

Student Organizations: All students interested in microbiology may join the University of Maryland student chapter of the American Society for Microbiology, the professional scientific society for microbiologists. Students with superior scholastic achievements are invited to join the Sigma Alpha Omicron microbiology honor society. Information on these organizations may be obtained in the departmental office.

Course Code Prefix — MICB

Music (MUSC)

College of Arts and Humanities

Tawes Fine Arts Building, 454-2501

Professor and Chair: Cohen
Associate Chairman: Cooper

Professors: Bernstein, Cossa, Folstrom, Garvey, Guarneri String Quartet (Dalley, Soyer, Steinhardt, Tree), Head, Heifetz, Heim, Helm†, Hudson, Johnson, Koscielny, Major, McDonald, Montgomery, Moss†, Schumacher, Serwer, Traver†, Troth
Associate Professors: Barnett, Davis, Delio, Elliston, Elsing, Fanos, Fleming, Gibson, Gowen, Mabbs, McClelland, Olson, Pennington, Robertson, Rodriquez, Ross, Wakefield, Wexler, Wilson
Assistant Professors: Balthorp, McCoy, Payerle, Saunders, Sparks
Lecturer: Beicken
Instructor: Walters

† Distinguished Scholar-Teacher

The objectives of the department are (1) to provide professional musical training based on a foundation in the liberal arts; (2) to help the general student develop sound critical judgment and discriminating taste in the performance and literature of music; (3) to prepare the student for graduate work in the field, and (4) to prepare the student to teach music in the public schools. To these ends, three degrees are offered: the Bachelor of Music, with majors in theory, composition, and music performance; the Bachelor of Arts, with a major in music; the Bachelor of Science, with a major in music education, offered in conjunction with the College of Education.

Music courses and private lessons are open to all majors who have completed the specified prerequisites, or their equivalents. Lessons are also available for non-majors, if teacher time and facilities permit. The University Bands, University Orchestra, University Chorale, University Chorus, Jazz Ensemble, and other ensembles are likewise open to qualified students by audition.

The Bachelor of Music Degree. Designed for qualified students with extensive pre-college training and potential for successful careers in professional music. Recommendation for admission is based on an audition before a faculty committee. A description of the audition requirements and prerequisites is available in the departmental office. A grade of C or above is required in all major courses.

Bachelor of Music (Perf.: Piano)
Sample Program

	Semester Credit Hours	
Freshman Year	I	II
MUSP 119	4	4
MUSC 128: Sight Reading for Pianists	2	2
MUSC 150: Theory of Music I	3	3
University Studies Program	6	6
	15	15
Sophomore Year		
MUSP 217	4	4
MUSC 228: Accompanying for Pianists	2	2
MUSC 230: History of Music I		3
MUSC 250: Advanced Theory of Music I	4	4
University Studies Program	6	3
	16	16
Junior Year		
MUSP 315	4	4
MUSC 330: History of Music II	3	3
MUSC 328: Chamber Music Performance for Pianists	2	2
MUSC 450: Musical Form	3	
Elective		2
University Studies Program	4	6
	16	17
Senior Year		
MUSP 419	4	4
MUSC 492: Keyboard Music I		3
Musc 467: Piano Pedagogy I	3	
Elective	2	
University Studies Program	6	3
	15	10

The Bachelor of Arts Degree. Designed for qualified students whose interests include broader career alternatives. Recommendation for admission is based on an audition before a faculty committee. A description of the audition requirements, prerequisites, and program options is available in the departmental office. A grade of C or above is required in all major courses.

Bachelor of Arts (Music)
Sample Program

	Semester Credit Hours
Freshman Year	
MUSP 109	4
MUSC 150: Theory of Music I	6
MUSC 129: Ensemble	2
Electives, College and USP Requirements	18
	30
Sophomore Year	
MUSP 207	4
MUSC 250: Advanced Theory of Music I	8
MUSC 229: Ensemble	2
Electives, College and USP Requirements	16
	30
Junior Year	
MUSP 305	2
MUSC 330: History of Music II	6
MUSC 450: Musical Form	3
MUSC 329: Ensemble	1
Electives, College and USP Requirements	18
	30
Senior Year	
Music Electives	10
Electives, College and USP Requirements	20
	120

The Bachelor of Science Degree.
(Music Education)

The Department of Music in conjunction with the College of Education offers the Bachelor of Science degree with concentrations available in Instrumental Music Education and Choral-General Music Education for qualified students preparing for careers in teaching K through 12. Recommendation for admission is based on a performance audition before a faculty committee. Descriptions of audition requirements and program requirements are available in the Music Department Office on request. For sample program requirements, see Dept. of Curriculum and Instruction, Music Education.

Special Programs. The Department of Music actively cooperates with other departments in double majors, double degrees, and Individual Studies programs. Details are available on request.

Course Code Prefixes — -MUSC, MUED, MUSP

Natural Resources Management Program (NMRT)

College of Agriculture

Room 0218, Symons Hall, 454-3738

Assistant Professor and Coordinator: Gibson
Adjunct Professor: Flyger
Instructors: Sieling, Adams

The responsible development and use of natural resources are essential to the full growth and stability of an economy.

The goal of the Natural Resources Management Program is to teach students balanced concepts of the efficient use and judicious management of natural resources. This preprofessional program identifies their role in economic development while maintaining concern for society and the environment, through a comprehensive approach involving natural sciences, economics, and social sciences. It prepares students for careers in technical, administrative, educational, and research work in such areas as water and land use, fish and wildlife management, and other areas of natural resources management. Course options also include preparation for graduate study in any of several areas within the biological and social sciences.

Students will pursue a broad education program and then elect subjects concentrated in one of three management areas of interest. Plant and Wildlife Resources Management, Land and Water Resources Management, or Environmental Education and Park Management.

Basic Curriculum Requirements

	Semester Credit Hours
University Studies Program Requirements*	40
BIOL 105 — Principles of Biology I	4
BIOL 106 — Principles of Biology II	4
CHEM 103, 113 — General Chemistry I; General Chemistry II*	8
GEOL 100, 110 — Introductory Physical Geology, Physical Geology Laboratory*	
OR	
GEOG 201, 211 — Geography of Environmental Systems, Geography of Environmental Systems Laboratory*	4

AGRO 302 — General Soils*	4
AREC 240 — Environment and Human Ecology*	3
MATH 140 or 220 — Calculus I or Elementary Calculus I*	4—3
BIOM 301 — Introduction to Biometrics	3
ECON 201 or 205 — Economics*	3
AREC 453 — Economic Analysis of Natural Resources	3
BOTN 462 — Plant Ecology and Plant Ecology Laboratory	4
GEOG 340	3
OR	
GEOL 340 — Geomorphology	4
MICB 200 — General Microbiology*	3
PHYS 117 — Introduction to Physics*	4
ZOOL 212 — Ecology, Evolution and Behavior*	4
NRMT 470 — Principles of Natural Resource Management	3
GVPT 273 — Introduction to Environmental Politics	3
AREC 432 — Introduction to Natural Resource Policy	3
BMGT 360 — Personnel Management	3
CMSC 103 — Introduction to Computing for Non-majors	
OR	
EDCI 487 — Introduction to Computers in Instructional Settings	3

* May satisfy college requirements and/or a University Studies requirement

Management Areas (23 hours)

Plant and Wildlife Resource Management	
Science Area	10
Management Area	10
Related Coursework or Internship	3
Land and Water Resource Management	
Science Area	10
Management Area	10
Related Coursework or Internship	3
Environmental Education and Park Management	
Science Area	10
Management and Education Area	10
Related Coursework or Internship	3

Advising: Advising is mandatory. See Dr. Gibson in room 0218 Symons Hall; phone 454-3738.

Internships: Natural Resources Management Internships are available by signing up for NMRT 389. For further information, see Dr. Gibson in Room 0218 Symons Hall; phone 454-3738

Student Organization: Students may join the campus branch of the Natural Resources Management Society. Further information is available from Dr Gibson in Room 0218 Symons Hall.

Course Code Prefix — -NRMT

Personnel and Labor Relations

For information, see College of Business and Management entry

Philosophy (PHIL)

College of Arts and Humanities

1131C Skinner Building, 454-2851/2

Professor and Chair: Slote
Professors: Bub, Devitt, Lesher, Pasch, Schlaretzki (Emeritus), Suppe, Svenonius, Wallace (part-time)
Associate Professors: J. Brown, Celarier, Cherniak, Darden, Greenspan, Johnson, Levinson, Martin, Odell, Rey, Stairs
Assistant Professors: Horty, Thomas
Research Associates: Fullinwider, Lichtenberg, Luban, MacLean, Sagoff, Shue, Wachbroit

The Department of Philosophy seeks to develop students' logical and expository skills and their understanding of the foundations of human knowledge and of value, in accordance with its conception of philosophy as essentially an activity rather than a body of doctrine. Thus in all courses students can expect to receive concentrated training in thinking clearly and inventively and in expressing themselves exactly about philosophical issues. This training has general applicability to all professions in which intellectual qualities are highly valued, such as law, medicine, government and business management. With this in view the major in philosophy is designed to serve the interests of those in the majority who are preparing for careers outside of philosophy as well as those in the minority who are preparing for graduate study in philosophy.

The following are among the courses giving the general student training in rigorous thinking, experience in critical and imaginative reflection on philosophical problems or familiarity with the philosophical foundations of Western and other culture: PHIL 100 (Introduction to Philosophy), PHIL 110 (Plato's Republic), PHIL 140 (Contemporary Moral Issues), PHIL 170 (Introduction to Logic), PHIL 173 and 174 (Logic and the English Language I and II), PHIL 236 (Philosophy of Religion), PHIL 243 (Philosophy of Rural Life), PHIL 341 (Ethical Theory), and the historical courses 310, 316, 320, 325, 326, 327, 328.

For students interested particularly in philosophical problems arising within their own special disciplines, a number of courses are appropriate: PHIL 233 (Philosophy in Literature), PHIL 250 and 453 (Philosophy of Science I and II), PHIL 245 and 445 (Political and Social Philosophy I and II), PHIL 360 (Philosophy of Language), PHIL 331 (Philosophy of Art), PHIL 332 (Philosophy of Beauty), PHIL 334 (Philosophy of Music), PHIL 438 (Topics in Philosophical Theology), PHIL 308C (Philosophy and Computers), PHIL 450 and 451 (Scientific Thought I and II), PHIL 452 (Philosophy of Physics), PHIL 454 (Philosophy of Economics), PHIL 455 (Philosophy of the Social Sciences), PHIL 456 (Philosophy of Biology), PHIL 457 (Philosophy of History), PHIL 458 (Topics in the Philosophy of Science), PHIL 465 (Philosophy of Psychology), PHIL 472 (Philosophy of Mathematics), and PHIL 474 (Induction and Probability).

Pre-law students may be particularly interested in PHIL 140 (Contemporary Moral Problems), PHIL 245 and 445 (Political and Social Philosophy I and II), and PHIL 447 (Philosophy of Law). Pre-medical students may be particularly interested in PHIL 342 (Moral Problems in Medicine), and PHIL 456 (Philosophy of Biology).

The Department's curriculum is enriched by courses in philosophy and public policy issues taught by research associates in the Institute for Philosophy and Public Policy under the repeatable designations PHIL 308 (Studies in Contemporary Philosophy) and PHIL 408 (Topics in Contemporary Philosophy), cross-listed under similar headings in Government and Politics. Topics include such subjects as Business Ethics, Welfare and Distributive Justice, Responsibility of Professionals, Environmental Ethics, and the Morality of Forced Military Draft.

The department requirements for a major in philosophy are as follows: (1) a total of at least thirty hours in philosophy, not including PHIL 100, (2) PHIL 271, 310, 320, 326, 341, and at least two courses numbered 399 or above, (3) a grade of C or higher in each course counted toward the fulfillment of the major requirement.

Fifteen hours of supporting courses are required to be selected in accordance with guidelines available in the Philosophy Department Office.

Course Code Prefix — -PHIL

Physical Education (PHED)

College of Physical Education, Recreation and Health

Room 2351 PERH Building, 454-2928

Chair: Dr. David H. Clarke
Associate Chair: Dr. Jerry P. Wrenn
Professors: Clarke, Dotson, Kelley, Sloan, Steel, Vaccaro
Associate Professors: Clark, Hagberg, Hatfield, Hult, Hurley, Phillips, Santa Maria, Struna, Wrenn
Assistant Professors: Arrighi, Caldwell, Chalip, Ryder, Scott, Tyler, Vander Velden
Instructors: Coates, Drum, McHugh, Owens, Roper, Wenhold
Lecturer: Brown
Emeriti: Eyler, Humphrey, Husman

The Department of Physical Education offers two undergraduate degree programs to satisfy different needs of students. Students may choose to major in Physical Education or in Kinesiological Sciences. Descriptions of each program follow.

The Physical Education Major: This curriculum, including three certification options, prepares students (1) for teaching physical education in the secondary schools, (2) for coaching, and (3) for leadership in youth and adult groups which offer a program of physical activity. Students are referred to the section on the College of Education for information on teacher education application procedures. The first two years of this curriculum are considered to be an orientation period in which the student has an opportunity to gain an adequate background in general education as well as in those scientific areas closely related to this field of specialization. In addition, emphasis is placed upon the development of skills in a wide range of motor activities. Further, students are encouraged to select related areas, especially in the field of biology, social sciences, psychology, health education, and recreation as fields of secondary interest. These materially increase the vocational opportunities which are available to graduates in physical education.

Requirements for Major Including Program Options: Physical Education majors have a choice of three separate options for teacher certification: (1) kindergarten through sixth grade, (2) seventh through twelfth grade or (3) kindergarten through twelfth grade. Due to increased marketability it is recommended that students pursue the K - 12 option. The specific course requirements for each option are as follows:

Departmental Requirements/All Certification Options

	Credit Hours
University Studies Program Requirements	40
HLTH 150 — First Aid and Safety	2
PHYS 101 or 11 or CHEM 102 or 103 or 105	3—4
PHED 180 — Foundations of Physical Education	3
BIOL 105 — Principles of Biology I	4
ZOOL 201, 202 — Human Anatomy and Physiology I, II	8
EDHD 300 — Human Development and Learning	6
PHED 300 — Kinesiology	4
EDPA 301 — Foundations of Education	3
PHED 314 — Methods in Physical Education	3
PHED 333 — Physical Activity for the Handicapped	3
PHED 385 — Motor Learning and Skilled Performance	3
PHED 390 — Practicum in Teaching Physical Education	3
PHED 480 — Measurement in Physical Education	3
PHED 491 — Curriculum in Physical Education	3
PHED Skills Laboratories*	17

*Students should discuss this requirement with department advisors.

K - 6 Certification Option

PHED 370 — Motor Development	3
EDHD 320 — Human Development through the Lifespan	3
EDCI 485 — Student Teaching in Elementary School-Physical Education	8
PHED 421 — Physical Education for Elementary School: A Movement Approach	3
PHED Electives (6 hours total), PHED 350, PHED 360, or PHED 493	6
Electives	6—7

7 - 12 Certification Option

EDCI 390 — Principles and Methods of Secondary Education	3
PHED 381 — Prevention and Care of Athletic Injuries	3
EDCI 495 — Student Teaching in Secondary Schools	8
PHED 360 — Physiology of Exercise	3
PHED 490 — Administration of Physical Education and Sport	3
PHED 493 — History and Philosophy of Sport and Physical Education	3
Electives	4—5

K - 12 Certification Option

EDCI 390 — Principles and Methods of Secondary Education	3
EDCI 485 — Student Teaching in Elementary Schools	6
EDCI 495 — Student Teaching in Secondary Schools	6
PHED 381 — Prevention and Care of Athletic Injuries	3
PHED 421 — Physical Education for Elementary School: A Movement Approach	3
PHED 360 — Physiology of Exercise	3
PHED 370 — Motor Development	3
PHED 490 — Administration of Physical Education and Sport	3
PHED 493 — History and Philosophy of Sport and Physical Education	3

Admission: Admission to the Physical Education major occurs upon completion of 45 applicable credits. At that time, students apply through the College of Education by taking the California Achievement Test. Additionally, all physical education majors must have and maintain a 2.5 average to gain admittance and continue in the program.

Fieldwork and Internship Opportunities: Student Teaching. Opportunity is provided for student teaching experience in physical education and school health education. The student devotes one semester in the senior year to observation, participation, and teaching under a qualified supervising teaching in an approved Teaching Education Center. A University supervisor from the College of Physical Education, Recreation and Health visits the student periodically and confers with the student teacher, the cooperating teacher, and the center coordinator, giving assistance when needed.

To be eligible for student teaching, students must: (1) have the recommendation of the University supervising teacher, and (2) have fulfilled all required courses for the B.S. degree except those in the Block Student Teaching Semester, excluding those exceptions approved by each department. The student must obtain a grade of "C" or better in all professional courses in his or her curriculum and must register for all courses in the "Block" concurrently.

Uniforms: Suitable uniforms, as prescribed by the department, are required for the activity classes, teaching practicum(s) and for student teaching. These uniforms should be worn only during professional activities.

Kinesiological Sciences Major: This curriculum offers students the opportunity to study the body of knowledge of human movement and sport, and to choose specific programs of study which allow them to pursue a particular goal related to the discipline. There is no intent to orient all students toward a particular specialized interest or occupation.

This program provides a hierarchical approach to the study of human movement. First, a core of knowledge is recognized as being necessary for all students in the curriculum. These core courses are considered foundational to advanced and more specific courses. Secondly, at the "options" level, students may select from two sets of courses which they believe will provide the knowledge to pursue whatever goal they set for themselves in the future. To further strengthen specific areas of interest, students should carefully select related studies courses and electives.

Kinesiological Sciences Option

Freshman Year	
PHED 287 — Sport and American society	3
PHED 293 — History of Sport in America	3
Activity Courses*	6
Electives	3
Sophomore Year	
ZOOL 201, 202 — Human Anatomy and Physiology	8
PHED 370 — Motor Development	3
Activity Courses*	2
Electives	9
Related Studies*	6
Junior Year	
PHED 300 — Kinesiology	4
PHED 350 — Psychology of Sports	3
PHED 360 — Physiology of Exercise	3
PHED 263 — Philosophy of Sport	3
PHED 385 — Motor Learning and Skilled Performance	3
Option*	3
Related Studies*	6
Senior Year	
PHED 496 — Quantitative Methods	3
PHED 497 — Independent Studies Seminar	3
Electives	7
Option*	9
Related Studies*	3

*Students should discuss these requirements with departmental advisor.

In addition to the above required courses, students must fulfill the University Studies Program and College of Physical Education, Health, and Recreation Requirements. Minimum number of semester hours for degree is 120.

Advising: Advising is strongly recommended for all students majoring in Physical Education and Kinesiological Sciences although it is not mandatory. Students are assigned a permanent faculty member to assist them with registration procedures, program updates and other information. Students are advised to follow closely the program sheets which outline the order in which courses should be taken to allow proper progression through the degree programs. Departmental contacts are: Physical Education-Lynn Owens, 454-3072; Kinesiological Sciences-Dr. Robert Tyler, 454-6252.

Honors and Awards: The aim of the Honors Program is to encourage superior students by providing an enriched program of studies which will fulfill their advanced interests and needs. Qualified students are given the opportunity to undertake intensive and often independent studies wherein initiative, responsibility, and intellectual discipline are fostered. To qualify for admission to the program:

1. A freshman must have a "B" average in academic (college prep) curriculum of an accredited high school.
2. A sophomore must have a cumulative GPA of 3.00 in all college courses of official registration.
3. All applicants must have three formal recommendations concerning their potential, character, and other related matters.
4. All applicants must be accepted by the Faculty Honors Committee. In completing the program, all honor students must:

   a. Participate in an honors seminar where thesis and other relevant research topics are studied.
   b. Pass a comprehensive oral examination covering subject matter background.
   c. Successfully prepare and defend the honors thesis.

On the basis of the student's performance in the above program, the college may vote to recommend graduation without honors, with honors, or with high honors.

Student Organizations: All students enrolled in physical education as either teacher preparation or kinesiological sciences majors are eligible for membership in the Physical Education Student Association (PESA). The goals of PESA are: (1) to encourage participation in local, state, or regional, and national professional organization, (2) to provide opportunities for leadership through involvement in campus, community, and professional activities, (3) to promote the student and discussion of current issues, problems, and trends, (4) to assist in the acquisition of career skill competencies by application in relevant field experiences, (5) to foster a spirit of service to others through volunteer projects, and (6) to sponsor social activities and to develop effective professional relationships

Course Code Prefix: PHED

Physical Sciences Program

College of Computer, Mathematical, and Physical Sciences

Dean's Office: Rm 2300 Mathematics Building, 454-4596

Co-Chairs: Williams/Ellis
Astronomy: Matthews
Chemistry: Durso
Computer Science: Atchison
Geology: Stifel
Engineering: Walston
Mathematics: Lipsman
Meteorology: Carton
Physics: Hornyak

Purpose. This program is suggested for many types of students: those whose interests cover a wide range of the physical sciences; those whose interests have not yet centered on any one science; students interested in a career in an interdisciplinary area within the physical sciences; students who seek a broader undergraduate program than is possible in one of the traditional physical sciences; students interested in meteorology; preprofessional students (pre-law, pre-medical); or students whose interests in business, technical writing, advertising or sales require a broad technical background. This program can also be useful for those planning science-oriented or technical work in the urban field; the urban studies courses must be taken as electives. Students contemplating this program as a basis for preparation for secondary school science teaching are advised to consult the Science Teaching Center staff of the College of Education for additional requirements for teacher certification.

The Physical Sciences Program consists of a basic set of courses in physics, chemistry, and mathematics, followed by a variety of courses chosen from these and related disciplines: astronomy, geology, meteorology, computer science, and engineering. Emphasis is placed on a broad program as contrasted with a specialized one.

Students are advised by members of the Physical Sciences committee. This committee is composed of faculty members from each of the represented disciplines. Assignment of an advisor depends on the interest of the student, e.g., one interested principally in chemistry will be advised by the chemistry member of the committee. Students whose interests are too general to classify in this manner will normally be advised by the chair of the committee.

The Curriculum. The basic courses include MATH 140, 141 and one other math course for which MATH 141 is a prerequisite (11 or 12 credits); CHEM 103 and 113, or 105 and 115 (8 credits); PHYS 162, 262, 263 (11 credits); or PHYS 171, 272, 273, 275, 276, 375 (14 credits); CMSC 110 (4 credits); or 112/113 (8 credits).

The choice of the physics sequence depends on the student's future aims and his/her background. PHYS 161, 262, 263 is the standard sequence recommended for most physical science majors. This sequence will enable the student to continue with intermediate level and advanced courses. Students desiring a strong background in physics are urged to enroll in PHYS 171 — 375. This is the sequence also used by physics majors and leads directly into the advanced physics courses.

Beyond these basic courses the student must complete twenty-four credits at the 300 or 400 level, chosen from any three of the following disciplines: chemistry, physics, mathematics (including statistics), astronomy, geology, meteorology, computer science, and one of the engineering disciplines, subject to certain limitations. The twenty-four distributive credits must be at the upper level (300 — 400) and shall be distributed so that at least six credits are earned in each of the three selected areas of concentration. A grade of C or better must be earned in both basic and distributive requirement courses.

All Physical Science students must have a planned program of study approved by the Physical Sciences Committee. In no case shall the Committee approve a program which has less than 18 credits in the three distributive areas of the Physical Sciences program to be completed, at the time the program is submitted.

Engineering courses used for one of the options must all be from the same department, e.g., all must be ENAE courses, or a student may use a combination of courses in ENCH, ENNU, and ENMA, which are all offered by the Department of Chemical and Nuclear Engineering, courses offered as engineering sciences, ENES, will be considered as a department for these purposes.

Because of the wide choice and flexibility within the program, students are required to submit for approval a study plan during their sophomore year, specifying the courses they wish to use in satisfying the requirements of the major.

Students who wish to depart from the stipulated curriculum may present their proposed program for approval by the Physical Science Committee. An honors program is available to qualified students in their senior year.

Certain courses offered in the fields included in the program are not suitable for physical science majors and cannot count as part of the requirements of the program. These include any courses corresponding to a lower level than the basic courses specified above (e.g., MATH 115), some of the special topics courses designed for non-science students, as well as other courses. A complete listing of "excluded" courses is available from the CMPS Undergraduate Office.

Honors Program. The Physical Sciences Honors Program offers students the opportunity for research and independent study. Interested students should request details from their advisor.

Physics (PHYS)

College of Computer, Mathematical, and Physical Science

1117 Physics Building, 454-3401/2

Professor and Chair: Liu
Professor & Associate Chair: Bardasis
Associate Professor and Associate Chair: Skuja
Professors Emeriti: Glover III, Myers
Professors: Alley, Anderson, Banerjee, Bhagat, Boyd, Brill, C. C. Chang, C. Y. Chang, Chant, Chen, Currie, Das Sarma, DeSilva, Dorfman, Dragt†, Drew, Earl, Einstein, Falk, Ferrell, Glasser, Glick, Gloeckler, Gluckstern, Goldenbaum, Greenberg, Griem, Griffin, Holmgren, Hornyak, Howarth, Hu, Korenman, Layman, Lee, Lynn, MacDonald, Misner, Mohapatra, Oneda, Ott, Papadopoulos, Park, Patit, Prange, Redish, Richard, Roos, Siegel, Snow†, Sucher, Toll, Wallace, Weber, Woo, Zorn
Affiliate Professor: Fisher
Professors (part-time): Z. Slawsky, J. Wilson
Visiting Professors: Franklin, Trimble
Adjunct Professors: Boldt, Ramaty, Trivelpiece
Associate Professors: Antonsen, Drake, Ellis, Fivel, Gates, Goodman, Hadley, Hassam, Kacser, Kim, Kirkpatrick, Mason, Paik, Wang, Williams
Adjunct Associate Professor: Dixon
Assistant Professors: Hamilton, Jacobson, Jawahery, Kelly, Talaga
Lecturers: Beach, Carlson, Frey, Holt, Kirshner, Rapport, M. Slawsky, Solow, Stern, Swank

†Distinguished Scholar-Teacher

The Physics Program includes a broad range of undergraduate courses designed to satisfy the needs of almost every student, from the advanced physics major to the person taking a single introductory physics course. In addition, there are various opportunities for personally directed studies between student and professor, and many undergraduate research opportunities also are available. For further information consult "Undergraduate Study in Physics" available from the department.

Courses for Non-Majors. The department offers several courses which are intended for students other than physics majors. PHYS 101, 102, 106, 111, and 112 without a laboratory and PHYS 114 and 117 with laboratory are designed to satisfy the University Studies distribution requirements (PHYS 106 may be taken with the lab PHYS 107 to satisfy the lab requirement. PHYS 102 taken with the lab PHYS 103 similarly satisfies the lab requirement). PHYS 121, 122, or 141, 142 satisfy the requirements for professional schools such as medical and dental, and PHYS 161, 262, 263 satisfy the introductory physics requirement for most engineering programs. PHYS 318 and 499F are one-semester courses stressing contemporary topics for those who have completed a year of one of the above sequences. In addition, PHYS 420 is a one-semester modern physics course for advanced students in science or engineering. Either the course sequence 161, 262, 263 or the Physics major sequence 171, 272, and 273 is suitable for mathematics students and those who major in other physical sciences.

The Physics Major. Courses required for Physics Major

Lower Level Courses	Credit Hours

PHYS 171 — -Introductory Physics: Mechanics 3
PHYS 272 — -Introductory Physics. Thermodynamics, Electricity and Magnetism 3
PHYS 273 — -Introductory Physics. Electricity and Magnetism, Waves, Optics 3
PHYS 275 — -Introductory Physics Lab. Mechanics and Thermodynamics 1
PHYS 276 — -Introductory Physics Lab. Electricity and Magnetism 2
PHYS 375 — -Introductory Physics Lab. Optics 2
MATH 140 — -Calculus I 4
MATH 141 — -Calculus II 4
MATH 241 — -Calculus III 4
MATH 240 — -Linear Algebra 4

Upper Level Courses
PHYS 410 — -Elements of Theoretical Physics: Mechanics 4
PHYS 411 — -Elements of Theoretical Physics: Electricity and Magnetism 4
PHYS 414 — -Introduction to Thermodynamics and Statistical Mechanics 3
PHYS 421 — -Introduction to Modern Physics 3
PHYS 422 — -Modern Physics 4
PHYS 395 — -Advanced Experiments 3
One upper level mathematics course (preferably differential equations)
PHYS 429 — -Atomic and Nuclear Physics: Laboratory 3
OR
PHYS 485 — -Electronic Circuits 4

After taking the basic sequence, the student will be able to take specialty courses, such as those in nuclear physics or condensed matter physics, or courses in related fields which are of particular interest to him or her. In addition, a student interested in doing research may choose to do a bachelor's thesis under the direction of a faculty member.

Honors in Physics. The Physics Honors Program offers to students of good ability and strong interest in physics a greater flexibility in their academic programs, and provides a more stimulating atmosphere through contacts with other good students and faculty members. There are opportunities for part-time research participation which may develop into full-time summer projects. An honors seminar is offered for advanced students and credit may be given for independent work or study.

Students are accepted by the department's Honors Committee on the basis of recommendations from their advisors and other faculty members. To receive a citation of "with honors in physics" or "with high honors in physics" the student must complete a senior thesis and pass a comprehensive examination in his or her senior year.

Course Code Prefix — -PHYS

Production Management

For information, see College of Business and Management entry.

Psychology (PSYC)

College of Behavioral and Social Sciences

1147 Zoology-Psychology Building, 454-6691

Professor and Chair: Goldstein
Professor and Assistant Chair: B. Smith
Professors: Anderson, Carter-Porges (affiliate), Dies, Dooling, Fein (affiliate), Fretz, Gelso, Gollub, Hall, Hill, Hodost†, Horton, Isen (affiliate), Kruglanski, Levinson (Emeritus), Lightfoot (affiliate), Lissitz (affiliate), Locke* (Business and Management), Lorion, Magoon, Martin, McIntire, J. Mills, Penner, Porges (affiliate), Pumroy, Schneider, Scholnick, Sigall, Steinman, Sternheim, Torney-Purta (affiliate), Trickett, Tyler, Waldrop (Emeritus), Yeni-Komshian (affiliate)
Associate Professors: Allen, Brauth, R. Brown, Coursey, Egel (affiliate), Freeman, (affiliate, Counseling Center), Helms, Larkin, Norman, Schneiderman (affiliate), Steele
Assistant Professors: Hanges, Johnson, Klein, Kivlighan (affiliate, Counseling Center), O'Grady, Plude, Stangor, Zamostny (affiliate, Counseling Center)

* Joint appointment with unit indicated.
†Distinguished Scholar-Teacher

Psychology can be classified as a biological science (Bachelor of Science degree) and a social science (Bachelor of Arts degree) and offers academic programs related to both of these fields. The undergraduate curriculum in psychology provides an organized study of the behavior of humans and other organisms in terms of the biological conditions and social factors that influence such behavior. In addition, the undergraduate program is arranged to provide opportunities for learning that will equip qualified students to pursue further study of psychology and related fields in graduate and professional schools.

Students who are interested in the biological aspects of behavior tend to choose a program leading to the Bachelor of Science degree, while those interested primarily in the social factors of behavior tend to choose the Bachelor of Arts degree. The choice of program is made in consultation with an academic advisor.

Graduation Requirements

Graduation requirements are the same for the Bachelor of Science and Bachelor of Arts degrees. Students must take at least 35 credits in Psychology including 14 credits at the 400 level. PSYC 386, 387, 478 and 479 may not be included in those 35 required credits. The required courses include PSYC 100, 200 and two laboratory courses chosen from PSYC 400, 410, 420 and 440. In order to assure breadth of coverage, Psychology courses must have been divided into four areas. The 35 credit total must include at least two courses from two of the four areas and at least one course from each of the remaining areas. The areas and courses are:

Area I: 206, 301, 310, 400, 401, 402, 403, 404, 405, 410, 453.
Area II: 221, 341, 420, 421, 423, 424, 440, 442, 443, 444
Area III: 235, 330, 332, 334, 337, 353, 354, 355, 356, 357, 432, 435, 436, 456, 457, 458
Area IV: 336, 354, 361, 451, 452, 460, 462, 463, 464, 465, 466

In addition, all students must complete (a) either Math 111, 140 or 220, (b) one of the following laboratory courses: BIOL 105, CHEM 103, 104, 105, 113, 115, PHED 360, PHYS 121, 141, 142, 191/5, 192/6, 293/5, 294/6, 262, 263, ZOOL 101, 201, 202, 210, 212 and (c) ENGL 101 or an English literature course from a prescribed department list.

Students wishing to receive a Bachelor of Science degree must complete a 15 credit supporting course sequence in relevant math and/or science courses including two laboratory courses and a total of 9 credits at the advanced level. The 15 credits must be completed with at least a 2.0 average. The students should consult the current *Psychology Undergraduate Program Guide* for a list of approved advanced Math-Science Courses.

A grade of C or better must be earned in all 35 credits of psychology courses used for the major and all credits used to meet the Math-English-Science supporting course sequence. No course may be used as a prerequisite unless a grade of C is earned in that course prior to its use as a prerequisite. The prerequisite for any required laboratory course is a 2.5 grade point average in PSYC 100 and 200. The departmental grade point average will be a computation of grades earned in all psychology courses taken (except 386, 387, 478, and 479) and the courses selected to meet the Math-English-Science sequence. The GPA in the major must be at least 2.0.

Advising

Advising and information about the Psychology program are available weekdays from 9 a.m.-12 noon and 1 p.m.-4:30 p.m. in the Psychology Undergraduate Office (Room ZP1107). Advising appointments may be made by calling 454-6691. Ms. June Slack coordinates the Undergraduate Advising system. The director of the Undergraduate Program is Dr. Ellin K. Scholnick whose office is ZP 2147A (454-6394).

Student Organizations

The Psychology Honorary Society is Psi Chi which has an office in the Undergraduate Suite (ZP 1107) where information about applications, eligibility and membership can be obtained. Psi Chi offers a series of workshops on topics of interest to undergraduates.

Fieldwork

The department offers a program of fieldwork coordinated with a seminar through the course offering PSYC 386, 387. Dr. Robert Coursey (301-454-6895) usually administers the course.

Honors

The Departmental Honors Program offers the exceptional student a series of seminars and the opportunity to do independent research under a faculty mentor. To be admitted to the program students must file a formal application and be interviewed by the Director of the Program, Dr. William S. Hall (ZP 2147B, 301-454-6393). Students are eligible to enter the program if they are in their fourth to sixth semester of undergraduate work and have completed three courses in Psychology including Psyc 200 and have a 3.3 GPA overall and in Psychology. Students in the General Honors program may be admitted in their third semester providing that they have (a) earned an A in PSYC 100 or 100H, (b) finished the mathematics prerequisite for PSYC 200 and (c) have an overall GPA and Psychology GPA of at least 3.3. Since there are different graduation requirements including an undergraduate thesis and supporting math and science courses, the student is urged to consult the *Guide to the Honors Program in Psychology* available in the Undergraduate Office.

Special Facilities
Computer terminals, connected to the University computer system, are available in Room ZP 1140 for student use

Course Code Prefix — -PSYC.

Recreation (RECR)

College of Physical Education, Recreation and Health

Room 2367, PERH Building, 454-2930

Chair: Dr Fred N Humphrey
Associate Chair: Dr. Veda E. Ward
Professors: Humphrey, Iso-Ahola
Associate Professors: Churchill, Kuss, Strobell, Verhoven
Lecturers: Annand, Kauffman, Ward

The Recreation Major: This curriculum is designed to meet the needs of students who wish to qualify for positions in the leisure services fields, to enhance their understanding of leisure behavior and related opportunities, and to enable them to render distinct contributions to community life. The department draws upon various other departments and colleges within the University, and upon notable practitioners in the metropolitan area, to enrich course offerings in the leisure studies curriculum. A total of 120 credits is required for the Bachelor of Science degree.

Those majoring in recreation and leisure studies have opportunity for observation and practical experience in local, county, state and federal recreation programs, in social and group work agency programs, and in various programs of the Armed Forces, American Red Cross, hospitals, voluntary organizations, business and industry, and commercial recreation establishments. Majors are required to select an area of interest around which to center their elective coursework. The "options," accredited by the National Recreation and Parks Association, are Program Services, Recreation Resources Management, Therapeutic Recreation, and Generalist. Development of an area of professional emphasis within an option which is consistent with the student's career goals is encouraged. This area should focus on a specific population, setting or function within the more general option.

Requirements for Major Including Program Options: The Recreation degree consists of 120 credits with course work falling into the following categories: general education (40), major (40), option (30) and pure electives (10). There is ample opportunity for double-counting coursework to provide space for additional elective coursework, if desired

Recreation Curriculum

	Semester Credit Hours
*University Studies Program	40
RECR 130 Recreation and Leisure	3
SPCH 100 (or alternate approved by Department)	3
GVPT 170/100/273	3
RECR 270 Leisure Services and Special Populations	3
RECR 350 Recreational Use of Natural Areas	3
EDHD 320 Human Development Through the Life Span	3
RECR 420 Program Planning and Analysis	3
RECR 200 Sophomore Seminar	1
RECR 340 Field Work I	6
RECR 460 Leadership Techniques and Practices	3
RECR 490 Organization and Administration of Recreation	3
RECR 410 Measurement and Evaluation in Recreation	3
RECR 432 Philosophy of Recreation	3
RECR 300 Senior Seminar	1
RECR 341 Field Work II	8
Focus Area coursework	30
**Option Requirements 6, Therapeutic Recreation 10	
**Option Competencies 6	
Option Electives 18	
Pure Elective	1

*Please check advisor for recommended coursework
**RECR prefix courses may be mandated by option.

Admission: Department admission requirements are consistent with those of the University

Advising: Although students are ultimately responsible for progress toward the Bachelor of Science degree, advising in the department is mandatory For this purpose a faculty advisor is assigned to assist in identifying coursework which maximizes integration of general education and major requirements. Record evaluations and initial advisement is available through Dr Veda Ward at 454-3069

Fieldwork: A unique aspect of the Recreation major is the requirement of two practical field-based experiences totalling 560 hours, one is taken at the sophomore level and the other at the senior level

Honors and Awards: Phi Alpha Epsilon

Student Organizations: *University of Maryland Recreation and Parks Society* In the fall of 1959 the University of Maryland Recreation and Parks Society was formed by the undergraduate and graduate majors The society, an affiliate of the State and national recreation organizations, provides opportunities for University and community service, for rich practical experience, and for social interaction with those students and practitioners having mutual professional interest in parks, recreation and leisure services

Course Code Prefix: RECR

Romance Languages Program

College of Arts and Humanities

3106 Jimenez Hall, 454-4303

Advisory Committee: Dr Charles Russell (Italian), Little (Spanish), Black (French)

The Romance Languages Program is intended for students who wish to major in more than one romance language. Students selecting this major must take a total of forty-five credits selected from courses in two of the three components listed below: French, Italian and Spanish The first four courses listed under each group are required for that particular language component; exceptions or substitutions may be made only with the approval of the student's advisor in consultation with the Romance Languages Advisory Committee. To achieve the total of forty-five credits, twenty-one credits are taken in each of the two languages, as specified, and three additional credits are taken at the 400 level in either of the languages chosen. Literature or civilization courses may not be taken in translation. There are no requirements for support courses for the Romance Languages major. No grade lower than C may be used toward the major Students who wish to apply for Teacher's Certification should consult the College of Education

Requirements for each language are as follows: French — 204, 301, 351, 352; one additional language course at the 300 or 400 level; two additional literature or civilization courses at the 400 level; Italian — 204, 301, 351, 352; three additional literature or civilization courses at the 400 level. Spanish — 204, 301, 321-322 or 323-324, one additional language course at the 300 or 400 level; two additional literature or civilization courses at the 400 level.

Russian Area Studies Program

College of Arts and Humanities

2102E Francis Scott Key Hall, 454-4204

Professors: Harper (Geography), Brecht and Davidson (Germanic and Slavic), Dawisha (Government and Politics), Foust, Lampe (History), Yaney (History)
Associate Professors: Murrell (Economics), Berry, Glad and Hitchcock (Germanic and Slavic), Majeska (History)
Assistant Professors: Lekic, Merrill and Schallert (Germanic and Slavic), Kaminski (Government and Politics)
Instructor: Brin (Germanic and Slavic)
Lecturer: Manukian (Government and Politics)

The Russian Area Studies Program offers courses leading to a Bachelor of Arts in Russian studies. Students in the program study Russian and Soviet culture as broadly as possible, striving to comprehend it in all its aspects rather than focusing their attention on a single segment of human behavior It is hoped that insights into the Russian way of life will be valuable not only as such but as a means to deepen the students' awareness of their own society and of themselves

Course offerings are in several departments language and literature, government and politics, history, economics, geography, philosophy, and sociology A student may plan his or her curriculum so as to emphasize any one of these disciplines, thus preparing for graduate work either in the Russian area or in the discipline

Students in the program must meet the general degree requirements of the University and college from which they graduate They must complete twenty-four hours in Russian language and literature courses selected from among the following equivalent courses RUSS 101, 102, 201, 202, 301, 302, 303, 321, 322, 401, 402, 403, and 404 In addition, students must complete twenty-four hours in Russian area courses on the 300 level or

above. These twenty-four hours must be taken in at least five different departments, if appropriate courses are available, and may include language-literature courses beyond those required above.

It is recommended but not required that the student who plans on doing graduate work complete at least eighteen hours at the 300 level or above (which may include courses applicable to the Russian Area program) in one of the above-mentioned departments. It is also recommended that students who plan on doing graduate work in the social sciences — government and politics, economics, geography, and sociology — take at least two courses in statistical methods.

The student's advisor will be the program director or the designate. The student must receive a grade of C or better in all the above-mentioned required courses.

In addition to the courses in Russian language, literature, and culture taught in the Department of Germanic and Slavic Languages and Literatures, the following Russian Area courses are regularly offered:

ECON 380 — Comparative Economic Systems
ECON 482 — Economics of the Soviet Union
GEOG 325 — Soviet Union
GVPT 445 — Russian Political Thought
GVPT 451 — Foreign Policy of the U.S.S.R.
GVPT 481 — Government and Administration of the Soviet Union
HIST 305 — The Eastern Orthodox Church: Its Cultural History
HIST 340 — Eastern Europe Under Communism
HIST 344 — The Russian Revolutions of 1917
HIST 424 — History of Russia to 1801
HIST 425 — History of Russia from 1801 — 1917
HIST 442 — The Soviet Union
HIST 443 — Modern Balkan History
PHIL 328B — Studies in the History of Philosophy: Marxist Philosophy
SOCY 474 — Soviet Ethnic Issues

The various cooperating departments also offer occasional special courses in the Russian and Soviet field. HIST 237, Russian Civilization, is recommended as a general introduction to the program but does not count toward the fulfillment of the program's requirements.

Course Code Prefix — RUSS, SLAV

Science Communications

College of Computer, Mathematical, and Physical Sciences

The University of Maryland offers several interdisciplinary approaches to the training of science communicators, ranging from specialization in one science or engineering discipline with background in communication to specializing in journalistic communication with background coursework in the sciences. Each of the several program options can be tailored to the needs of individual students.

Undergraduate students interested in science communications can choose from a wide range of possibilities. For example, some may want a career writing about the general happenings of the day in the physical and life sciences, or some students may prefer writing about the span from a pure science to its applied technology. Others may prefer writing about one field — such as agronomy, astronomy, geology — and its impact on society — in ecological problems, space exploration, and plate tectonics.

The following are several approaches: Writing about the *physical sciences:* A recommended approach would be to take the Physical Sciences program with a minor in journalism. The Physical Sciences Program consists of a basic set of courses in physics, chemistry, and mathematics, followed by a variety of courses chosen from these and related disciplines: astronomy, geology, meteorology, and computer science.

Writing about the *life sciences:* A recommended approach would be to take the Biological Sciences Program with a minor in journalism. The Biological Sciences Program includes work in botany, entomology, microbiology, and zoology, and introduces the student to the general principles and methods of each of these biological sciences.

Writing about *engineering:* A recommended approach would be to take the B.S.-Engineering Program with a minor in journalism. The B.S.-Engineering Program blends two or three fields of engineering or applied science.

Writing about a *specific field:* A recommended approach would be to take a department major in any of the sciences, agriculture, or engineering and a minor in journalism.

Journalism combined with an overview of the sciences: A journalism major could take selected science courses that provide a familiarity with scientific thought and application.

Sociology (SOCY)

College of Behavioral and Social Sciences

2112 Art-Sociology Building. 454-5036

Professor and Chair: Falk
Professors: Billingsley* (Family and Community Development), Clignet, Dager, Janes (Emeritus), Hage, Kammeyer, Lejins (Emeritus), Presser, Ritzer, Robinson, Rosenberg, D. Segal, J. Teachman
Associate Professors: Brown, Finsterbusch, Henkel; Hirzel, J. Hunt, L. Hunt, Landry, Lengermann, McIntyre, Meeker, Pease, M. Segal, Vanneman
Assistant Professors: Canjar, Harper, Kahn, Neustadl
Lecturer: Altman* (BSOS)

*Joint appointment with unit indicated

Sociology is the scientific study of society, its institutions, organizations, and groups. Beginning with the simple interaction between two or more people, sociology examines the social organization of society from the development of social order to the causes and impact of social change. Sociology's subject matter ranges from the study of the social factors that affect the self-concept or the nature of sex roles at the individual level, to group processes, such as organizations designed to produce products or provide services, or the major institutions of society. In the latter category the department has strengths in the study of the military, family, education, health, welfare, and political and economic organizations. At the societal and world system level, the department looks at social movements, the basis of stratification or inequality, sources of instability, war, technology, and a number of other issues.

A major in sociology offers (1) a general education especially directed toward understanding the complexities of modern society and its social problems by using basic concepts, research and statistical skills; (2) a broad preparation for various types of professions, occupations, and services dealing with people; and (3) preparation of qualified students for graduate training in sociology, social work, law, and business. Sociology also forms a valuable background for those interested in other fields or majors. Courses in sociology can be used as preparation for careers in government and private research, urban planning, personnel work, human resources management, and many other policy-making and administrative careers.

Areas of Specialization. The program of instruction in Sociology offers courses in five major areas. The strong emphasis on advising in the department allows the student to combine these areas into individualized programs directed toward the student's specific goals. Specializations are available in social science research methodology, social psychology, social demography, social institutions, and inequality.

These areas of specialization can be combined to advantage or can be taken as part of a double major in conjunction with programs in other compatible areas such as economics, government and politics, psychology, business, etc. This program versatility and the rich experiential learning possibilities of the Washington metropolitan area combine to make the sociology curriculum a valuable career choice.

Requirements of the Sociology Major. Students in sociology must complete forty-four* hours of departmental requirements, none of which may be taken pass/fail. Thirty-two* of these hours are in sociology coursework which must be completed with a minimum average of C; fourteen* hours are in required core courses and eighteen hours are sociology electives, of which nine are required at the 400 level and an additional three are required at either the 300 or 400 level. Required core courses for all majors are SOCY 100 (Introduction), SOCY 201 (Statistics), SOCY 203 (Theory), and SOCY 202 (Methods).

*Forty-four hours are required because SOCY 201 and 202 are four-hour courses. For transfer students or those with equivalent courses which are only three-hour courses, exceptions to this forty-four hour requirement may be made by the Coordinator of the Sociology Undergraduate Program.

SOCY 100 should be taken in the freshman or sophomore year followed by SOCY 203. Three hours of mathematics (STAT 100; MATH 110, 111, 115, 140, 220, or their equivalents) are required of majors as a prerequisite of SOCY 201, SOCY 202 follows SOCY 201.

The supporting course requirement for majors is twelve hours of a coherent series of courses from outside of the department that relate to the student's major substantive or research interests. These courses need not come from the same department, but at least six hours must be from the College of Behavioral and Social Sciences. It is strongly recommended that the student work out an appropriate supporting sequence for the particular specialization with the departmental advisor.

Internship. Although internships are not a requirement for a major, students are strongly urged to consider the internship program offered by the

department or through the Experiential Learning Office located in Hornbake Library. Majors may receive up to six credits in SOCY 386/387 by the combination of working in an internship/volunteer position plus doing some academic project in conjunction with the work experience.

Advising. Further information on coursework, internships, honors program careers, and other topics may be obtained from the Sociology Undergraduate Advisor, Room 2108 Art/Sociology Building, telephone number 454-5036.

Department of Sociology Requirements

	Semester Credit Hours
University Studies Program Requirements	40
SOCY 100 Introduction to Sociology	3
SOCY 201* Introductory Statistics for Sociology	4
SOCY 202 Introduction to Research Methods in Sociology	4
SOCY 203 Sociological Theory	3
2 Sociology courses at any level	6
1 Sociology course at 300 or 400 level	3
3 Sociology courses at 400 level	9
4 supporting** courses	12
Internship (recommended, not required)	6
Electives***	30—36
	120

* Three hours of mathematics (MATH 110, 111, 115, 140, 220 or their equivalents) are required as prerequisite.

** Courses complementing Sociology specialization must include at least two courses in behavioral and social sciences.

*** Students choosing to take internships will reduce their elective credit total by six credits

Honors Program:

The objective of the Honors Program in the Department of Sociology is to encourage and recognize superior scholarship by providing an opportunity for interested, capable and energetic undergraduate students to engage in study in an area of the student's interest and under the close supervision of a faculty mentor. The honors program is based upon tutorial study and independent research.

Students who have an overall cumulative grade point average of at least 3.3, a cumulative average of 3.5 in sociology courses, and who have taken at least 9 credits in sociology may apply. Transfer students with equivalent academic records at other accredited institutions are also eligible. Admission to the program will be based upon academic performance, and the judgment of the Undergraduate Committee on the degree to which the applicant has sufficient maturity and interest to successfully complete the requirements for graduation with Honors. Further information on the honors program is available from the Sociology Undergraduate Office.

Student Organizations:

There are two organizations for undergraduate sociology majors in the department. The Sociology Collective is a group open to all Sociology majors. The Collective was organized by a group of interested undergraduates to fill the needs of the student within the Sociology community. The Collective seeks to keep students informed about topics of interest including Department activities, career planning, changes within the University that may affect them, etc., and strives to enhance the feelings of community within the Department. Also, members of the Collective are invited to participate on faculty committees within the department and thereby represent the undergraduate perspective in policy decisions.

Alpha Kappa Delta is the National Honor Society for Sociology majors. Membership is based on Sociology G.P.A. (3.0) and overall G.P.A. (3.0). Students can apply after they have completed 18 credits in Sociology coursework. This organization's activities focus on providing tutoring services for undergraduates in the core courses

Course Code Prefix: SOCY

Spanish and Portuguese Languages and Literatures (SPAN)

College of Arts and Humanities

2215 Jimenez Hall, 454-4305/6

Professor and Chair: Sosnowski
Professors: Nemes, Pacheco
Visiting Professor: Martinez
Associate Professors: Aguilar-Mora, Igel
Assistant Professors: Benito-Vessels, Lavine, Naharro-Calderon, Rabasa, Sanjines, Zappala
Instructors: Downey-Vanover, Gordo, Little

Majors. Undergraduate majors can benefit from a wide range of courses in Spanish and Latin American literature and civilization, technical courses in translation, linguistics and commercial uses of Spanish. Area studies programs are also available in conjunction with other disciplines to provide the student with a solid knowledge of the Spanish and Latin American worlds. The major literature prepares the student for graduate studies in Spanish and opportunities in various fields of study and work.

A grade of at least C is required in all major and supporting area courses.

Language and Literature Major. Courses: SPAN 204, 221, 301-302, 311 or 312, 321-322 or 323-324, 325-326 or 346-347, plus four courses in literature at the 400-level, Spanish American, or Luso-Brazilian, for a total of thirty-nine credits. Nine credits of supporting courses, six of which must be on the 300 or 400 level in a single area other than Spanish, for a combined total of forty-eight credits. Suggested areas are: art, comparative literature, government and politics, history, philosophy, and Portuguese. All supporting courses should be germane to the field of specialization.

Foreign Area Major. Courses: SPAN 204, 301-302, 311 or 312, 315 or 316 or 317, 321-322 or 323-324, 325-326 or 346-347, plus three courses in literature at the 400-level, Spanish, Spanish American, or Luso-Brazilian, for a total of thirty six-credits. Twelve credits of supporting courses, six of which must be on the 300 or 400 level in a single area other than Spanish, for a combined total of forty-eight credits. Suggested areas: anthropology, economics, geography, government and politics, history, Portuguese, and sociology. All supporting courses should be germane to the field of specialization.

Translation Option. Courses: SPAN 301-302, 311 or 312; five courses from 316, 317, 318, 356, 357, 416, 417, 321-322 or 323-324, one course from 325-326 or 346-347, plus two courses in literature at the 400-level, Spanish, Spanish American, or Luso-Brazilian, for a total of thirty-nine credits. Nine credits of supporting courses, six of which must be on the 300 or 400 level in a single are other than Spanish, for a combined total of forty-eight credits. Suggested areas: art, comparative literature, government and politics, history, philosophy, and Portuguese.

Students interested in majoring in a combination of two Romance languages should see the description of the Romance Languages Program, above.

Honors in Spanish. A student whose major is Spanish and who, at the time of application, has a general academic average of 3.0 and 3.5 in his or her major field may apply to the Chair of the Honors Committee for admission to the Honors Program of the department. Honors work normally begins the first semester of the junior year, but a qualified student may enter as early as the sophomore year or as late as the second semester of the junior year. Honors students are required to take two courses from those numbered 491, 492, 493, and the seminar numbered 496 or equivalent, as well as to meet other requirements for a major in Spanish. There will be a final comprehensive examination covering the honors reading list which must be taken by all graduating seniors who are candidates for honors. Admission of students to the Honors Program, their continuance in the program, and the final award of honors are the prerogatives of the Departmental Honors Committee.

Elementary Honors. SPAN 102H is limited to specially approved candidates who have passed SPAN 101 with high grades, and will allow them to enter 203H. SPAN 203H is limited to students who have received high grades in 102, 102H, or 103 or the equivalent. Upon completion of 203H, with the recommendation of the instructor, a student may skip 204.

Lower Division Courses. The elementary and intermediate courses in Spanish and Portuguese consist of three semesters of four credits each (101, 102, 203). The language requirement for the B.A. degree in the College of Arts and Humanities is satisfied by passing 203 or equivalent.

Students who wish to enroll in Spanish 101, 102, and 203 must present their high school transcript for proper placement. See the *Schedule of Classes* for further information.

Transfer students with college credit have the option of continuing at the next level of study, taking a placement examination, or electing courses 103 or 203. If a transfer student takes course 103 for credit, he/she retains transfer credit only for the equivalent of course 101. A transfer student placing lower than his/her training warrants may ignore the placement but does so at his/her own risk. If he/she takes 203 for credit, he/she retains transfer credit for the equivalent of courses 101 and 102.

If a student has received a D in a course, advanced and completed the next higher course, he/she cannot go back and repeat the original course in which he/she received a D. A student who has earned credits for Spanish 204 may not subsequently earn credit for any lower level course.

Course Code Prefix — SPAN, PORT

Special Education (EDSP)

College of Education

1308 Benjamin Building, 454-2118/9

Professor and Chair: Burke
Professors: Hebeler, Simms
Associate Professors: Beckman, Egel, Graham, Kohl, Leone
Assistant Professors: Cooper, Harris, Lieber, Maag, Neubert, Speece
Research Associates: Florian, Kienas, MacArthur, Malouf, McLaughlin, Pilato, Powers
Instructors: Aiello, Crowley, Hudak, Long, Simon
Faculty Research Assistants: Krishnaswami, Newcomb, Rembacki, Schwartz, Strong, Stettner-Eaton, Teelucksingh

The Special Education Department offers an innovative and rigorous undergraduate program which prepares teachers of handicapped infants, children, or young adults. This program has been nationally recognized for many of its exemplary features. It is a five-year (10 semester, 150 credit hour) professional certification program which graduates students with a Bachelor of Science degree in special education with full special education teacher certification in the State of Maryland and certification reciprocity in over forty other states. Students enter the program as pre-special education majors and enroll in courses which meet University and college requirements. At the same time, students take supporting coursework designed to provide an understanding of normal human development and basic psychological and sociological principles of human behavior.

Special Education students receive specialized training in the following areas: language development; motor development; social-emotional development; normal human behavior, social and educational needs of the handicapped, diagnostic and educational assessment procedures; instructional procedures and materials; curriculum development, classroom and behavior management; effective communication with the parents and families of handicapped children; community resource planning, and local, State, and Federal laws concerning handicapped children and youth. Graduates of the program are expected to master specific skills in each of these areas.

Requirements. In Semester V and VI students accepted as Special Education majors take a two-semester sequence of generic special education courses and practicum experiences. These courses provide the student with a solid foundation in theory and practice related to the education of all handicapped children across a wide range of ages and disabilities.

At the completion of Semester V, students select one of the following four areas of specialization:

1. Education of the Severely Handicapped (SH)
2. Early Childhood Special Education (EC)
3. Education of the Educationally Handicapped (EH)
4. Secondary and Transition Special Education (SI)

Coursework in each of these four areas is designed to develop expertise with a specific handicapped population. Students work directly with handicapped children or youth during each semester, leading up to student teaching during the last semester.

Combined Bachelor's/Master's Program. Selected undergraduate students majoring in special education will be eligible for dual application of credit to both the bachelor's and master's degrees. A student desiring graduate credit should apply for admission to the Graduate School during the last semester of the fourth year. If admitted to the Graduate School, the student may select up to twelve credits (four courses) of specified coursework from the fifth year of the undergraduate program to be applied simultaneously toward the credits required for the master's degree in special education at the University of Maryland. The selected courses may not include field practica or student teaching experiences. Students will be expected to fulfill supplemental requirements in the selected courses. To complete the master's degree, students must fulfill all Graduate School requirements for the degree, with the exception of the selected 400-level courses.

Admission. Prior to formal acceptance as a special education major, all students are required to enroll in a special education introductory course (EDSP 210) which provides a survey of the history and current issues in special education. Upon successful completion of the introductory course and forty-five semester hours of requirements, pre-special education majors apply for formal admission to the Department of Special Education by submitting an application with a statement of intent specifying their professional goals. With the exception of academically talented students, all students declaring special education as a major will be accepted as pre-special education majors. To be accepted as a full special education major, students must fulfill the College of Education requirements for admission to Teacher Education, as well as the following departmental conditions:

1. Completion of coursework indicated below with an asterisk.
2. Admission is competitive beyond the minimum 2.5 grade point average required for consideration.
3. Submission of an application together with a statement of intent specifying the applicant's professional goals.

Admittance will be based on the completion of the required courses, the grade point average, the applicant's experience with handicapped persons, and the appropriateness and clarity of the professional goal statement.

An appeals process has been established for students who do not meet the competitive GPA for admission, but who are applying in connection with special University programs including affirmative action and academic promise.

Advising. The Department of Special Education provides academic advisement through a faculty and a peer advisement program. Special education majors are assigned a faculty advisor, who is carefully matched to the student's area of interest. It is required that all students receive advisement on a semester basis. Students are urged to use the Special Education Advisory Center, room 1235 in the Benjamin Building.

Student Organizations. The Department of Special Education encourages student participation in extra-curricular activities within and outside of the University.

Council for Exceptional Children. The Department of Special Education sponsors Chapter 504 of the council for Exceptional Children (CEC). The goals of the chapter include both professional development of the members and service to the University and community. Activities include meetings on topics relevant to special education, trips to state and national conventions, and student/faculty social events.

Student Advisory Board. The department Student Advisory Board is made up of two undergraduate special education students, two graduate special education students, and one representative from CEC. These members are elected by the student body. The purpose of the board is to represent the student body at department faculty meetings and to offer student options on matters of concern.

Volunteer and Career Services. This service, coordinated by students, compiles and disseminates information regarding volunteer and part-time job opportunities for working with handicapped students.

Required Courses:
University Study Program Requirements to include the following courses which are departmental requirements:
*HIST 156 (3)
MATH 210 (4)
*Lab Science (4)
*ENGL Literature (3)
*PSYC 100 (3)
*SOCY 100 or 105 ()

Other Academic Support Courses
*HESP 202 (3)
HESP 400 (3)
*STAT 100 or SOCY 201 (3/4)
*EDHD 411 or PSYC 355 (3)
EDHD 460 (3)

Professional Courses:
*EDSP 210 — Introduction to Special Education (3)
EDHD 300 — Human Development and Learning (6)
EDPA 301 — Foundations of Education (3)
EDSP 320 — Introduction to Assessment in Special Education (3)
EDSP 321 — Comparative Approaches to Behavior and Classroom Management in Special Education (3)
EDSP 322 — Field Placement in Special Education (3)
EDSP 443 — Assessment and Instructional Design for the Handicapped: Reading and Written Communication Disorders (3)
EDSP 331 — Introduction to Curriculum and Instructional Methods in Special Education (3)
EDSP 332 — Interdisciplinary Communication in Special Education (3)
EDSP 333 — Field Placement in Special Education II (3)

Admission to the department usually occurs during the sophomore year. Students then take general special education coursework during the third year and choose a specialty area sequence at that time. Students are accepted into one of their two specialty area choices. Specialty area programs include eleven to fourteen hours of electives.

Specialty Area Requirements:

The Severely Handicapped Option
EDSP 400 — Curriculum and Instructional Methods for Severely Handicapped Students (3)
EDSP 402 — Field Placement: Severely Handicapped (4)
EDSP 403 — Physical and Communication Development for Severely Handicapped Students (3)
EDSP 404 — Education of Autistic Children (3)

EDSP 405 — Field Placement: Severely Handicapped II (4)
EDSP 410 — Community Functioning Skills for Severely Handicapped Students (3)
EDSP 330 — Families and the Education of Handicapped Children (3)
EDSP 420 — Developmental and Behavioral Characteristics of Non-handicapped and Handicapped Infants and Young Children or
EDSP 460 — Career/Vocational Education for the Handicapped (3)
EDSP 411 — Field Placement: Severely Handicapped III (5)
EDSP 412 — Vocational Instruction for Severely Handicapped Students (3)
EDSP 417 — Student Teaching: Severely Handicapped (11)
EDSP 418 — Seminar: Issues and Research Related to the Instruction of the Severely Handicapped (3)

The Educationally Handicapped Option

EDSP 440 — Assessment and Instructional Design for the Educationally Handicapped: Cognitive and Psychosocial Development (3)
EDSP 441 — Assessment and Instructional Design for the Educationally Handicapped: Oral Language and Communication Disorders (3)
EDSP 442 — Field Placement: Educationally Handicapped (3)
EDSP 330 — Families and Education of Handicapped Children (3)
EDSP 445 — Field Placement: Educationally Handicapped II (4)
EDHD 413 — Adolescent Development (3)
EDCI 456 — Diagnosis and Treatment of Learning Disabilities in Mathematics (3)
EDSP 446 — Instructional Design for the Educationally Handicapped: Functional Living Skills (3)
EDSP 447 — Field Placement: Educationally Handicapped III (4)
EDSP 450 — Program Management for the Educationally Handicapped (3)
EDSP 457 — Student Teaching: Educationally Handicapped (11)
EDSP 458 — Seminar: Special Issues and Research Related to the Educationally Handicapped (3)
EDSP 460 — Career/Vocational Education for the Handicapped (3)

The Secondary and Transition Special Education Option

EDSP 330 — Families and the Education of Handicapped Children (3)
EDSP 460 — Career/Vocational Education for the Handicapped (3)
EDSP 461 — Field Placement: Career/Vocational (3)
EDSP 462 — Career/Vocational Assessment and Instruction for the Mild to Moderately Handicapped (3)
EDSP 463 — Field Placement: Career/Vocational II (3)
EDIT 421 — Industrial Arts in Special Education (3)
EDCI 456 — Diagnosis and Treatment of Learning Disabilities in Mathematics (3)
EDSP 450 — Program Management for the Educationally Handicapped (3)
EDSP 465 — Field Placement: Career/Vocational III (3)
EDSP 467 — Student Teaching: Career/Vocational (11)
EDSP 468 — Special Topics Seminar in Career/Vocational Education for the Handicapped (3)
EDSP 464 — Career/Vocational Assessment and Instruction for the Mildly to Moderately Handicapped (Introduction to Secondary and Transition Issues in Special Education (3)
EDSP 446 — Instructional Design for the Educationally Handicapped: Functional Living Skills (3)

The Early Childhood Special Education Option

EDSP 420 — Developmental and Behavioral Characteristics of Non-Handicapped and Handicapped Infants and Young Children (3)
EDSP 421 — Field Placement: Early Childhood Special Education I (3)
EDSP 422 — Curriculum and Instruction in Early Childhood Special Education (Moderate to Mild:3-8 yrs) (3)
EDSP 424 — Field Placement: Early Childhood Special Education II (4)
EDCI 410 — The Child and Curriculum — Early Childhood (3)
EDSP 330 — Families and the Education of Handicapped Children (3)
EDSP 423 — Psychoeducational Assessment of Preschool Handicapped Children (3)
EDSP 430 — Intervention Techniques and Strategies for Preschool Handicapped Children (Severe to Moderate: Birth to Six Years) (3)
EDSP 431 — Field Placement: Early Childhood Special Education III (Severe to Moderate) (4)
EDSP 437 — Student Teaching: Early Childhood Special Education (11)
EDSP 438 — Seminar: Special Issues in Early Childhood Education (3)
EDSP 400 — Curriculum and Instructional Methods for Severely Handicapped Students or
EDSP 441 — Assessment and Instructional Design for the Handicapped — Oral Language and Communication Disorders (3)

Course Code Prefix — EDSP

Statistics and Probability

Department of Mathematics

1105 Mathematics Bldg., 454-4883/4944

Director: P. Smith

The Mathematical Statistics Program offers a wide range of undergraduate courses in applied statistics, mathematical statistics, and probability. The program is administered by the Statistics Branch of the Department of Mathematics, and all STAT courses carry credit in mathematics.

An undergraduate program stressing statistics is available to majors in mathematics. See the Department of Mathematics listing for details. Master's and doctoral degrees in statistics are offered by the Mathematical Statistics Program.

Course Code Prefix — STAT

Textiles and Consumer Economics (TEXT)

College of Human Ecology

Room 2100 Marie Mount Hall, 454-2141

Professor and Chair: Smith
Professors: Dardis, Hollies, Spivak, Yeh
Associate Professors: Block, Brannigan, Paoletti
Assistant Professors: Anderson, Ettenson, Hacklander, Pourdeyhimi, Soberon-Ferrer, Verma, Wagner
Adjunct Assistant Professors: Basiotis, Morris
Lecturers: Ensor (pt.), Friedman (pt.), Goldberg (pt.), Jaklitsch (pt.), Stone (pt.)
Assistant Instructor: Turner (pt.)
Emeriti: Wilbur

The Department of Textiles and Consumer Economics is devoted to the development and dissemination of knowledge concerning consumers and their near environment. It draws upon and applies the knowledge of and methods of the physical and social sciences, the arts, humanities, and law to improve the welfare of consumers. The department offers the Bachelor of Science, Master of Science, and Doctor of Philosophy degrees. The faculty is multidisciplinary and has degrees in a variety of fields including textiles, human ecology, economics, engineering, chemistry, psychology, and law. In addition to their teaching responsibilities, the faculty conduct research and serve the University community through participation in University committees. The faculty members, together with the graduate students and adjunct faculty (many of whom work in government or industry), form a lively and stimulating community in which students are exposed to many different viewpoints.

The department has modern, well-equipped teaching and research laboratories including a comfort research laboratory, a computer-aided design laboratory, a computer-aided merchandising laboratory, and an historic textiles/costume collection.

Students in Textiles and Consumer Economics may select one of four majors which offer diverse professional opportunities. Specific careers depend on the major area of emphasis although there is overlapping of career opportunities in some instances reflecting similar course requirements. The majors offered by the department are as follows:

I. *Apparel Design.* In this major students develop an understanding of the interrelationships between apparel design and apparel performance. Emphasis is placed on artistic expression and creativity, textile materials, and the design of apparel to meet different needs and different socio-economic conditions. Graduates are prepared for positions as designers, assistant designers, stylists, fashion executives, fashion coordinators, consultants to the home sewing industry, or extension and consumer educators.

II. *Textile Marketing Fashion Merchandising.* These two programs emphasize the marketing and retailing of textile products and combine a background in textile materials with courses in marketing, retailing and consumer behavior. Students may select an option in (a) textile marketing or (b) fashion merchandising. An internship experience gives students the opportunity to apply what they have learned in class and prepares them for careers in marketing and retailing once they graduate. Graduates completing the textile marketing option will be prepared for marketing positions with fiber, textile, or apparel companies. They may work in product development, sales, merchandising, promotion, market research, and management. Graduates completing

the fashion merchandising option will be prepared for careers in retailing with department, specialty, or mass merchandising stores. They may work in buying, merchandising, fashion coordination, publicity, personnel, and management.

III. *Textile Science.* This major emphasizes the scientific and technological aspects of textiles. It is designed to provide students with a background in textile materials and textile science including the engineering and finishing of fabrics for specific end uses. Many students in the major go on to graduate study. Graduates are prepared for careers in industry and government. They may work in research and testing laboratories, in consumer technical service and marketings programs, in quality control, in buying and product evaluation, and in consumer education and information programs.

IV *Consumer Economics.* This major combines economics and marketing with the knowledge of basic consumer goods and services. The program focuses on consumer decision-making and the degree to which the marketplace reflects consumer needs and preferences. The subject matter includes consumption economics, marketing, consumer behavior, consumer law, and consumer product marketing. Graduates may work in the planning, marketing, and consumer relations divisions of business and industry, in program development and analysis for government agencies or in consumer education programs in industry and government.

An internship program is available to all students majoring in the Department of Textiles and Consumer Economics during their senior year. Students must apply for admission to the internship program, including the retailing internship, in the second semester of their junior year.

A department Honors Program permits outstanding undergraduates to explore on an individual basis a program of work which will strengthen their undergraduate program and their professional interests. Students selected for the program must have at least a "B" average to be considered. Students in the honors program participate in a junior honors seminar and present a senior thesis. Students completing this program graduate with department honors.

Advising. The Department has mandatory advising for ALL majors. Majors are assigned faculty advisors and MUST discuss their program of study with their advisor each semester. Majors should check with the Department office (Room 2100 Marie Mount Hall, Telephone 454-2141) if they do not know the name of their faculty advisor.

Selective Admission. Any student admitted to the University of Maryland at College Park is eligible for admission to Apparel Design, Textile Marketing/Fashion Merchandising or Textile Science. Admission to Consumer Economics is competitive.

Students applying for admission to Consumer Economics must complete MATH 220, ECON 201 and ECON 203 with a grade of C or better in each course.

Students seeking admission to Consumer Economics must meet the grade point average (GPA) set by the Department for admission. ALL students seeking admission to this competitive major should contact the Department for details of the selective admission process.

Requirements for Each Major

To graduate, students must complete the required department and supporting courses with the required grades, Human Ecology requirements and University Studies Program requirements. Students should consult the current *Undergraduate Catalog* and Department Major Guides and also consult with their faculty advisor. All students must complete a minimum of 120 credit hours to earn a Bachelor of Science degree. Specific requirements for each major (or option) are as follows:

Apparel Design

Majors must complete all required TEXT/CNEC courses with a grade of C or better.

	Semester-Credit Hours I	II
Freshman Year		
ENGL 101 — Introduction to Writing, if not exempt	3	
TEXT 105 — Introduction to Textiles	3	
MATH 110 or 115 — Introduction to Mathematics I or Pre-Calculus	3	
SOCY 100 — Introduction to Sociology	3	
SPCH 100, 107 or 125 Basic Principles of Speech Communication, Technical Speech Communication or Introduction to Interpersonal Speech Communication		3
Human Ecology Elective (APDS 101 — Fundamentals of Design)		3
TEXT 205 — Textile Materials and Performance		3
PSYC 100 — Introduction to Psychology		3
University Studies Program Requirements	3	3
Total	15	15
Sophomore Year		
CHEM 103 or 111 — General Chemistry I or Chemistry in Modern Life	3-4	
CHEM 104 — Fundamentals of Organic and Bio-Chemistry or Department Requirement*		3-4
ECON 201 — Principles of Economics I	3	
ECON 203 — Principles of Economics II		3
TEXT 221 — Apparel I	3	
TEXT 222 — Apparel II		3
TEXT 305 — Textile Materials Evaluation and Characterization	3	
Human Ecology Elective (APDS 102 — Design II)		3
University Studies Program Requirements	3	3
Total	15-16	15-16
Junior Year		
TEXT 347 — History of Costume II	3	
TEXT 355 — Textile Furnishings	3	
BMGT 350 — Marketing Principles and Organization	3	
TEXT 365 — Fashion Merchandising	3	
TEXT 420 — Apparel Design, Draping	3	
Department Requirement*	3	
Human Ecology Elective (ARTT 110)	3	
Electives	6	
ENGL 391 or 393 — Advanced Composition or Technical Writing	3	
Total	30	
Senior Year		
TEXT 441 — Clothing and Human Behavior	3	
TEXT 375 — Economics of Textile and Apparel Industries	3	
TEXT 425 — Apparel Design; Advanced Problems	3	
Department Requirement*	3	
University Studies Program Requirements	6	
Electives	10-12	
Total	28-30	

*Department Requirement. Select from TEXT 345, 363, 365, 388, 470, or 498.

Textile Marketing/Fashion Merchandising

Students in the Textile Marketing/Fashion Merchandising program must complete the common requirements of the program. In addition, they must select either the textile marketing or the fashion merchandising option and complete the courses specified for the option selected. Textile marketing option: CHEM 103, CHEM 104, TEXT 400, TEXT 452 and TEXT 470. Fashion merchandising option: CHEM 103, CHEM 104, TEXT 221, and TEXT 365.

Majors must complete MATH 110 (or MATH 115), ECON 201, ECON 203, all required TEXT/CNEC courses and the BMGT Support Area courses with a grade of C or better.

	Semester-Credit Hours I	II
Freshman Year		
ENGL 101 — Introduction to Writing, if not exempt	3	
TEXT 105 — Introduction to Textiles	3	
MATH 110 or 115 — Introduction to Mathematics 1 or Pre-Calculus	3	
SOCY 100 — Introduction to Sociology	3	
SPCH 100, 107 or 125 — Basic Principles of Speech Communication, Technical Speech Communication or Introduction to Interpersonal Speech Communication		3
Human Ecology Elective (APDS 101 Fundamentals of Design)		3
Elective		3
PSYC 100 — Introduction to Psychology		3
University Studies Program Requirements	3	3
Total	15	15
Sophomore Year		
CHEM 103 — General Chemistry I	4	
CHEM 104 — Fundamentals of Organic and Biochemistry		4
University Studies Program Requirements	3	3
ECON 201 — Principles of Economics I	3	
ECON 203 — Principles of Economics II		3
TEXT 205 — Textiles Materials and Performance	3	
Human Ecology Elective		3
TEXT 221 — Apparel I or Elective* (See option selected)	3	
Elective		3
Total	16	16
Junior Year		
Electives	6	
BMGT 350 — Marketing Principles and Organization	3	
TEXT 355 — Textile Furnishings	3	

TEXT 400 — Research Methods or Department Requirement* (See option selected)	3
Human Ecology Elective	3
TEXT 365 — Fashion Merchandising or Department Requirement* (See option selected)	3
BMGT Support Area**	3
TEXT 305 — Textile Materials: Evaluation and Characterization	3
ENGL 391 or 393 — Advanced Composition or Technical Writing	3
Total	30

Senior Year

TEXT 441 — Clothing and Human Behavior or CNEC 437 — Consumer Behavior	3
TEXT 375 — Economics of the Textile and Apparel Industries	3
University Studies Program Requirements	6
TEXT 452 — Textile Science: Chemical Structure and Properties of Fibers or Department Requirement* (See option selected)	3
BMGT Support Area**	6
TEXT 470 — Textile and Apparel Marketing or Department Requirement* (See option selected)	3
Electives	4
Total	28

*Department Requirement. Select from ALL CNEC and TEXT courses numbered 300 or above

**BMGT Support Area. Select from BMGT 353, 354, 360, 364, 372, 380, 392, 453, 454, 456.

Textiles

Majors must complete ALL required TEXT/CNEC courses with a grade of C or better.

	Semester-Credit Hours I	II
Freshman Year		
ENGL 101 — Introduction to Writing, if not exempt	3	
TEXT 105 — Introduction to Textiles	3	
MATH 115 — Pre-Calculus	3	
SOCY 100 — Introduction to Sociology		3
SPCH 110, 107, or 125 — Basic Principles of Speech Communication, Technical Speech Communication or Introduction to Interpersonal Speech Communication		3
Human Ecology Elective		3
TEXT 205 — Textile Materials and Performance		3
CHEM 103 — General Chemistry I	4	
CHEM 113 — General Chemistry II		4
PSYC 100 — Introduction to Psychology	3	
Total	16	16
Sophomore Year		
University Studies Program Requirements	3	6
TEXT 305 — Textile Materials: Evaluation and Characterization	3	
CHEM 233, 243, Organic Chemistry I, II	4	4
MATH 140 — Calculus I	4	
MATH 141 — Calculus II		4
Total	14	14
Junior Year		
ECON 201 and 203 — Principles of Economics I and II	6	
PHYS 141 or 121 — Principles of Physics or Fundamentals of Physics I	4	
PHYS 142 or 122 — Principles of Physics or Fundamentals of Physics II	4	
TEXT 452 — Textile Science Chemical Structure and Properties of Fibers	3	
Human Ecology Elective	6	
University Studies Program Requirements	3	
Elective	3	
Total	29	
Senior Year		
ENGL 391 or 393 — Advanced Composition or Technical Writing*	3	
BMGT 350 — Marketing Principles and Organization	3	
TEXT 454 — Textile Science: Finishes or		
TEXT 456 — Textile Science: Dyes and Dye Application	3	
TEXT 375 — Economics of the Textile and Apparel Industries	3	
TEXT 400 — Research Methods	3	
University Studies Program Requirements	6	
Electives	10	
Total	31	

*ENGL 393 preferred

Consumer Economics

Majors must complete MATH 115, MATH 220, ECON 201, ECON 203, ALL required CNEC/TEXT courses and Support Area courses with a grade of C or better. ECON 305 and ECON 306 MUST be completed with an average grade of C.

	Semester Credit Hours I	II
Freshman Year		
ENGL 101 — Introduction to Writing, if not exempt	3	
MATH 115 — Pre-Calculus		3
SOCY 100 — Introduction to Sociology	3	
SPCH 100, 107 or 125 — Basic Principles of Speech Communication, Technical Speech Communication or Introduction to Interpersonal Speech Communication		3
Human Ecology Elective		3
CNEC 100 — Introduction to Consumer Economics	3	
University Studies Program Requirements	3	3
PSYC 100 — Introduction to Psychology	3	
Elective	3	
Total	15	15
Sophomore Year		
University Studies Program Requirements	6	3
ECON 201 and 203 — Principles of Economics I and II	3	3
MATH 220 or 140 — Elementary Calculus I or Calculus I	3-4	
MATH 221 or 141 — Elementary Calculus II or Calculus II or		
Elective		3-4
Elective		3
Human Ecology Elective	3	3
Total	15-16	15-16
Junior Year		
CNEC 435 — Economics of Consumption	3	
CNEC 310 — Consumer Economics and Public Policy	3	
ENGL 391 or 393 — Advanced Composition or Technical Writing	3	
CNEC 431 — The Consumer and the Law	3	
Support Area Requirement*	3	
BMGT 350 — Marketing Principles and Organization	3	
ECON 305 — Intermediate Macroeconomic Theory and Policy	3	
ECON 306 — Intermediate Microeconomic Theory	3	
Elective	6	
Total	30	
Senior Year		
CNEC 400 — Research Methods	3	
CNEC 437 — Consumer Behavior	3	
University Studies Program Requirements	6	
CNEC 410 — Consumer Finance	3	
Support Area Requirement*	6	
Electives	7-9	
Total	28-30	

*Majors must select one of four identified Support Areas. These areas are as follows: Product Information, Marketing, Finance or Economics. Majors should check with the Department to obtain specific course requirements for each identified support area.

Course Code Prefix: TEXT, CNEC.

Transportation, Business, and Public Policy

For information consult College of Business and Management Entry

Urban Studies, Institute for

College of Behavioral and Social Sciences

1113 Lefrak Hall, 454-5718

Director: Corey

Professors: Corey, Levin, Stone* (Government and Politics)
Associate Professors: Baum, Brower, Christian* (Geography), Howland, Hula+
Assistant Professor: Chang
Lecturers: Laidlaw (Part-time), Williams
Affiliate Faculty: Chen, DuPuy, Fogle, Francescato
*Joint appointment with unit indicated
+Distinguished Scholar-Teacher

The Urban Studies Major: The Institute for Urban Studies offers a program of study leading to the Bachelor of Arts degree in urban studies. The program is designed to encourage students either (1) to direct their learning toward planning and management careers in metropolitan-area organizations, or (2) to study urbanization processes and methods as a means toward earning a general education. The undergraduate urban studies program is built on several introductory and methods courses that examine the city in its metropolitan, interregional, national, and international policy contexts. The problems of planning and management of the metropolis are stressed. Students are encouraged by the multidisciplinary urban studies faculty to take advantage of the rich and extensive cross-departmental resources at College Park and are expected to select an urban-related specialization from another discipline. In addition to coursework in the behavioral and social sciences, urban studies students should consider appropriate supporting coursework in: Afro-American Studies, Architecture, Civil Engineering, Family and Community Development, Geography, History, Housing and Design, Recreation, Computer Science, Government and Politics, Economics, Business and Management, and other related fields. Integrative metropolitan problem-solving, planning, and management experiences, such as an internship and a planning workshop, are provided. Each student, working with an urban studies undergraduate advisor, designs a program of study based on interest and future career plans. Inasmuch as the Institute exists to serve the planning and management personnel and research needs of metropolitan organizations in the non-profit, for-profit, and government sectors, career guidance and advice on job placement have a high priority. To that end, internships are encouraged. Students are provided with advice in finding available vacancies, with resume writing and interview preparation. Urban studies majors are prepared to enter the professional arena or to continue with advanced study.

Each year the Institute sponsors the Lefrak lectures. This lecture series features highly-reputed scholars and practitioners in urban planning or urban policy formulation issues of the information age. A feature of the series is to expand our understanding of urbanization driven by job creation in high-technology manufacturing and higher-level services.

During the 1988-89 academic year the Urban Studies and Planning faculty is revising the curriculum and major requirements. Some courses may be offered in a manner that reflects the curriculum changes that are underway.

Requirements for Major Including Program Options: The Urban Studies major consists of a total of forty-two semester credit hours in which the student must earn a C or better in each course. The division of requirements is as follows:

Institute for Urban Studies Major Requirements

	Semester Credit Hours
Required URBS Core Courses, 5 of the following 6 courses	15
URBS 100 — Introduction to Urban Studies (or GEOG 150)	
Behavioral and Social Dimensions of the Urban	
URBS 210 — Community	
Environmental and Technological Dimensions of	
URBS 220 — the Urban Community	
URBS 350 — Quantitative Methods in Urban Studies	
The Development of the American City (or URBS	
URBS 410 — 320, or GEOG 350)	
OR	
URBS 450 — Problems in Urban Law	
Required URBS Advanced Specialization Courses*	6
City and Regional Economic Development Plan-	
URBS 440 — ning	
Management and Administration of Metropolitan	
URBS 470 — Areas	
Supporting Specialization Courses, 7 courses:	21
Total	42

Students are expected to choose from URBS 438, URBS 460, URBS 480, URBS 488 (Selected Topics), and additional related upper-division courses from other departments throughout the campus that contribute to their supporting specialization. Supporting courses may be selected from Geography, Architecture, Family and Community Development, Housing and Design, Economics, Sociology, Criminology, Afro-American Studies, or other urban-related fields.

The Institute encourages innovative supporting-course designs that are tailored individually to the particular needs of the student. These designs are developed with an advisor in the Institute for Urban Studies.

Advising: Prior to each pre-registration and registration, each Urban Studies major is expected to obtain advice from an Institute advisor. The Urban Studies undergraduate advisor is located in room 1123, Lefrak Hall; the advisor's telephone is 454-2488.

Internship Opportunities: Given the career focus of the Institute, internships are encouraged. Although the six credits for the internships do not count towards the Urban Studies major requirements, they are counted as elective credit. However, concurrent registration for URBS 399A is possible and the three credits for this independent study may be used towards fulfilling the supporting course requirement. The course is open principally to majors; however, at least second-semester sophomore status is required. The Institute has an extensive list of possible placements contingent upon the approval of the Internship Coordinator. Some of these organizations have included the City of Rockville, The United Way, Montgomery County, the U.S. Department of Housing and Urban Development, the Maryland National Park and Planning Commission, and the Maryland General Assembly. More information and an internship application form may be obtained from Mrs. Barbara Williams, Intern Coordinator, Room 1117 Lefrak Hall, telephone 454-2262.

Honors: For information on the Urban Studies Honors Program, contact Professor Hula, 1127 Lefrak hall, 454-2244 or the Undergraduate Advisor, 1123 LeFrak Hall, 454-2488.

Course Code Prefix — URBS

Women's Studies Program (WMST)

College of Arts and Humanities

1115 Mill Building, 454-3841

Professor and Director: Beck
Associate Professor: Moses
Assistant Professor: King
Lecturers: Meyer, Pratt, Stark, Zeiger, Zingo
Affiliate Faculty: Harley (Afro-American Studies); Diner (American Studies); Withers (Art); Doherty, Hallett (Classics); Gillespie (Communication Arts and Theater); Peterson (Comparative Literature); Leonard (Counseling and Personnel Services); Heidelbach (Curriculum and Instruction); Beauchamp, Kauffman, Joyce, Smith, Townsend (English); Hage (French and Italian); Frederiksen, Oster, Strauch (Germanic and Slavic Languages), Conway, McCarrick (Government and Politics); Hollander (Health Education); Kerkham (Hebrew and East Asian Languages); Gullickson (History); Gips (Housing and Design); Grambs, Tyler (Human Development); Beasley, Grunig (Journalism); Robertson (Music); Fullinwider (Philosophy and Public Policy); Hult (Physical Education); Hunt, McIntyre, Segal (Sociology).

The Women's Studies Program: The Women's Studies Program is an interdisciplinary academic program designed to examine the historical contributions made by women, reexamine and reinterpret existing data about women, and introduce students to the methodology of feminist scholarship. The program offers interdisciplinary core courses on women, encourages the offering of courses on women in other disciplines, and promotes the discovery of new knowledge about women. Women's Studies courses challenge students to question traditional knowledge about women and men and to examine differences among women. Students gain an understanding of and respect for differences in human lives as they encounter issues of diversity in the classroom — age, ability, class, ethnicity, race, religion, and sexual preference.

The Certificate Program. The Women's Studies Certificate Program consists of an integrated, interdisciplinary curriculum on women that is designed to supplement a student's major.

Requirements for the Certificate: The qualify for a Certificate in Women's Studies, a student will be required to earn twenty-one (21) credits in Women's Studies courses, nine of which must be at the 300 — 400 level. No more than 3 credit hours of special topics courses may be counted toward the Certificate. No more than 9 credit hours which are applied toward a major may be included in the Certificate Program. No more than 9 credit hours may be taken at institutions other than UMCP. Each student must obtain a grade of C or better in each course that is to be counted toward the Certificate. Of the twenty-one credits, courses must be distributed as follows:

1. A core of nine (9) credit hours from the following WMST courses:
   WMST 200: Introduction to Women's Studies: Women and Society (3) or
   WMST 250: Introduction to Women's Studies: Women, Art, and Culture (3);
   WMST 400: Theories of Feminism (3); and WMST 490: Senior Seminar Feminist Reconceptualizations (3).
2. At least one course from three of the four distributive areas listed below. Two of these courses must be from departments other than

Women's Studies. At least one course must be identified as adding a multi-cultural dimension.

Area I.
ARTH 489: Feminist Perspectives on Women in Art
CMLT 498: Feminist Literary Criticism
CMLT 498: Special Topics in Women in Literature
ENGL 250: Women in Literature
ENGL 348: Literary Works by Women
FREN 478: French Women Writers in Translation
GERM 439: Women in German Literature
JAPN 418: Japanese Women Writers in Translation
MUSC 448: Women and Music in Cross-Cultural Perspective
WMST 250: Introduction to Women's Studies: Women, Art, and Culture

Area II.
EDCP 498: Issues Related to Counseling Women
FMCD 430: Gender Role Development in the Family
HLTH 471: Women's Health
PSYC 336: Psychology of Women
SOCY 325: Sex Roles
SOCY 425: Sex Roles and Social Institutions
SPCH 324: Communication and Sex Roles
WMST 200: Introduction to Women's Studies: Women and Society

Area III.
AMST 418: Women and Family in American Life
AASP 428: Black Women in America
CLAS 309: Women in Ancient Greece and Rome
CLAS 320: Women in Classical Antiquity
GERM 281: Women in German Literature and Society
HIST 210: American Women to 1880
HIST 211: American Women 1880 to the Present
HIST 301: Women and Industrial Development
HIST 309: Proseminar in the History of Women
HIST 318: Women in the Middle East
HIST 458: Selected Topics in Women's History
HISt 618: Readings in the History of Women
PHED 492: History of the American Sportswoman

Area IV.
AASP 428: EEO Laws: Implications for Women and Minorities
AASP 428: Women and Work
ECON 374: Sex Roles in Economic Life
GVPT 436: Legal Status of Women
GVPT 471: Women and Politics
JOUR 460: Women in the Mass Media
PHED 451: Sport and the American Woman

3. The remaining courses may be chosen from any of the four distributive areas, or from among any of the WMST courses including WMST 498: Special Topics in Women's Studies and WMST 499: Independent Study. The Women's Studies Program also provides students with opportunities for co-curricular activities. In the past, students have supported their coursework with practical experience working with legal defense funds, rape crisis centers, battered women's shelters, feminist journals, and on Capitol Hill, as well as in the classroom applying feminist methodology to teaching strategies

Admission: Any student in good academic standing at College Park may enroll in the Certificate Program by declaring his/her intentions to the Women's Studies undergraduate advisor

Advising: It is suggested that students meet with the advisor in order to plan individual programs. Advising is available during regular office hours both with appointments and on a walk-in basis. The advisor is located in 1117 Mill Building.

Students may also earn an undergraduate major in Women's Studies by designing a major in consultation with the Assistant Dean for Undergraduate Studies and a member of the Women's Studies faculty

Course Code Prefix: WMST

ZOOLOGY (ZOOL)

College of Life Sciences

Undergraduate Office: 2227 Zoology-Psychology Building, 454-5131

Professor and Chair: Popper
Professors: Allan, Carter-Porges, Chen, Clark, Gill, Highton, Levitan†, Pierce
Associate Professors: Ades, Barnett, Bonar, Borgia, Colombini, Goode, Higgins, Imberski, Inouye, Linder, Reaka, Small
Assistant Professors: Chao, Olek, Payne, Shapiro, Wilkinson
Instructors: Kent, Piper, Spalding
Adjunct Professors: Kleiman, Manning, Morton, O'Brien, Potter, Smith-Gill
Adjunct Associate Professors: Kelly, Platt, Wemmer
Adjunct Assistant Professor: Braun

†Distinguished Scholar-Teacher

The Zoology Program is designed to give each student an appreciation of the diversity of programs studied by zoologists, an opportunity to explore more specialized biological subject areas, and an appreciation of the nature of observation and experimentation appropriate to investigations within these fields

Major Requirements. The required Zoology core courses are listed below. All majors are required to complete the College of Life Sciences core curriculum (see College of Life Sciences entry in Chapter 7 of this catalog) which includes BIOL 105 and 106. In addition, students must also complete a minimum of 24 credit hours of Zoology including:

ZOOL 213 — Genetics (4), prerequisite one semester of organic chemistry AND either,
ZOOL 210 — Animal Diversity (4)
OR
ZOOL 211 — Cell Biology & Physiology (4), prerequisite one semester of general chemistry (CHEM 103)
AND
Fourteen hours of junior-senior level Zoology courses, including two courses with laboratory,
AND one of the following:
BIOM 301 or 401, BCHM 461, MATH 240 or 400, PSYC 200, STAT 250 or 400 or 464

ZOOL 181, 201, 202, 301, 328Z, 330, 346, 361 and 381 do not satisfy major requirements. ZOOL 308H, 309H, 318H and up to three credits of 319, Special Problems in Zoology, may be used to fulfill six of the required 14 hours at the junior-senior level but not the laboratory requirements. MICR 453 is accepted as a laboratory course towards the major. College credit for research experience obtained off campus may be earned under ZOOL 328Z, but cannot be used to fulfill major requirements.

All majors must have a grade of "C" or better in BIOL 105, 106 and all Zoology courses and an average grade of "C" in the other College of Life Sciences core curriculum courses.

Students may specialize by registering for those courses particularly appropriate to their academic objectives. Areas of specialization include: molecular and cellular biology; physiology and neurobiology; ecology, evolution and behavior, marine science; and genetics. The Zoology major is suitable for students seeking preparation for post-graduate work in medicine, dentistry and graduate programs in the biological sciences and for employment in science related fields.

Advising. Advising for zoology majors is mandatory. Appointments can be scheduled through the Undergraduate Office (454-5131).

Honors. The Department of Zoology Honor's Program, directed by Dr. Herbert Levitan, offers highly motivated and academically qualified students the opportunity to work closely with a faculty mentor on an original research project. Information on this program and additional information on the Zoology program may be obtained from the Undergraduate Office (ZOP 2227), 454-5131.

Student Organization. Zoology Undergraduate Student Committee (ZUSC) promotes interactions with the faculty, provides information about departmental services, opportunities and events and sponsors a variety of educational and social activities. Interested students may contact ZUSC by stopping by the ZUSC office (ZOP 2230) or by calling 454-5131.

Course Code Prefix — ZOOL

Undergraduate Studies

General Honors Program

Room 0110 Hornbake Library, 454-2532/2533
Director: (Open)

Honors programs on campus are currently under review. Changes may be forthcoming. Students are encouraged to call the General Honors Program Office at 454-2532 for the latest information.

The General Honors Program is designed to allow energetic, academically talented students to pursue their general education at a challenging, stimulating level. Students can engage with others of similar ability and varied interests, in a program whose emphasis is on interdisciplinary and educationally broadening activity.

Students may apply for admission as freshmen. High school students ordinarily apply at the same time they apply for admission to the university.

although a separate application form is required for General Honors Undergraduates already on campus, majoring in any department or college, and transfer students with distinguished records from other institutions (especially if they come from other honors programs) are also encouraged to apply Selection is made on the basis of academic records, recommendations, standardized test scores, personal achievement, and other evidences of motivation and ability

Members of the program may enroll in a variety of kinds of courses, including special introductory colloquia, special honors sections of basics courses in many departments, upper level interdisciplinary general Honors seminars, independent study, and field experience Honors students take honors courses instead of, not in addition to, their other course work Honors Learning Communities allow students to integrate the content of a number of departmental courses around an important theme. Successful General Honors students graduate with a citation in General Honors which is recorded on their transcripts and diplomas

There is an extensive extra-curricular program of activities, and student participation in decision-making and administration is an important aspect of the program The General Honors Program is a member of the National Collegiate Honors Council, the Northeast Region of the National collegiate Honors Council, and the Maryland Collegiate Honors Council. Students and faculty participate regularly in the activities of these organizations. The program participates in a program of student exchanges with honors programs in other institutions.

For application forms and information about the General Honors Program, write to Director, General Honors Program, University of Maryland, College Park, MD 20742, or phone (301) 454-2532.

Individual Studies Program (IVSP)

1115 Hornbake Library, 454-2530
Administrative Dean for Undergraduate Studies: Mohrman

The Individual Studies Program provides an opportunity for students to create and complete individualized majors. To be accepted into the program, a student must:

1) have a clearly-defined academic goal which cannot reasonably be satisfied in an existing curriculum at College Park, and
2) be able to design, with faculty assistance, a sequence of courses and other learning experiences which is judged to have adequate substance for the awarding of a degrees in the special field of study.

Most IVSP majors are either a form of "area study" utilizing offerings from many departments or a clear combination of two disciplines. Many include internships or independent study projects in the program. All work is done under the supervision of a faculty advisor

Applicants are required to write a detailed prospectus outlining their proposed program of study They must meet the General University Requirements or University Studies Requirements according to year of entry. The process of applying often involves considerable consultation and several drafts of a prospectus, so it should be begun as early as possible Students may be admitted to the Individuals Studies Program after completion of 30 college credits and must be officially approved by the Individual Studies Faculty Review Committee prior to the final 30 Individual Studies programs approved before they can declare Individual Studies as a major.

Individual Studies provides three courses specifically for its majors. IVSP 319, a one-credit course graded Satisfactory/Fail, is a program report which each IVSP student must complete each semester. IVSP 318 is an independent study course which students can use for a variety of out-of-class internship and research opportunities. A variable-credit course, it may be taken for one to fifteen credits per semester. IVSP 320, the Bachelor's Report, is required for all students who complete more than 40% of their coursework through independent study, but many IVSP student enjoy the opportunity to complete a major work of synthesis that is evaluated by three faculty members

More information on requirements and procedures is available from the Office of the Dean for Undergraduate Studies, 1115 Hornbake Library, 454-2530. After reading that material, arrange a meeting with the Assistant Dean for Undergraduate Studies to discuss ideas informally and to plan the next steps.

Pre-Professional Programs

Health Professions Advising Office
3103 Turner Bldg., 454-2540

Pre-professional programs are designed to provide the necessary academic foundation required for entrance into professional schools. Some require two or three years of pre-professional study before admission to professional school Others normally require completion of a bachelor's degree. Five programs, for which completion of a bachelor's degree is NOT a normal prerequisite, may be declared as the official undergraduate academic major: pre-dental hygiene, pre-medical technology, pre-nursing, pre-pharmacy, and pre-physical therapy

In contrast, seven programs, for which a bachelor's degree IS a normal pre-requisite, are advisory ONLY and these cannot be declared as the official undergraduate academic major These include pre-dentistry, pre-law, pre-medicine, pre-optometry, pre-osteopathy, pre-podiatry and pre-veterinary medicine Students interested in such programs may choose from a wide variety of academic majors across campus The preprofessional advisor can provide guidance concerning the choice of major

Successful completion of a pre-professional program at College Park does not guarantee admission to any professional school Each professional school has its own admissions requirements and criteria, which may include grade point average in undergraduate courses, scores in aptitude tests (Medical College Admission Test, Law School Admission Test, Dental Aptitude Test, Allied Health Professions Admission Test, etc), a personal interview, faculty recommendations, and an evaluation from the pre-professional advisor For admissions requirements, the student is urged to study the catalog of each professional school

Although completion of the bachelor's degree is a normal prerequisite for admission for dental, law, and medical schools, three professional school of the University of Maryland at Baltimore—Dentistry, Law, and Medicine—have arrangements whereby a student who meets certain stringent requirements may be accepted for professional school after three years of undergraduate study (90 credit hours). After the successful completion of the first year in professional school at Baltimore, the student may apply for the bachelor's degree to be awarded by College Park

Because of the competitive nature of professional school admissions, pre-professional students should consider applying to more than one school and should also give some thought to alternative careers. The degree to which this is necessary varies with the program in which one is enrolled It is helpful to discuss this with the pre-professional advisor

The Health Professions Advising Office offers advising and information on health professions. Reading material on health careers, options, and alternatives as well as catalogs from many professional schools across the country are available The reading room is open to anyone seeking information about health careers.

Pre-Dental Hygiene
Advisor: Stewart

College Park students may prepare themselves not only for entrance into the UMAB Dental Hygiene Program but also for entrance into dental hygiene programs at other colleges and universities. To do this efficiently, students should obtain program information when first entering college so that requirements can be taken in normal sequence. Information for the University of Maryland Dental Hygiene Program is available at the Health Professions Advising Office, Room 3103, Turner Building

The Dental School of the University of Maryland, located in Baltimore (UMAB), offers a baccalaureate degree program in dental hygiene, as well as a post-certificate program for registered dental hygienists who have completed a two-year accredited dental hygiene program and are interested in completing the requirements for a baccalaureate degree. Completion of a two-year pre-professional curriculum at any University of Maryland campus except UMAB or at another accredited institution is required for eligibility to apply for admission as a junior in the Dental School at UMAB

For registered dental hygienists, completion of a two-year accredited dental hygiene program, completion of all required preprofessional courses, and a minimum of one year of clinical experience as a dental hygienist are required for eligibility to apply for admission to the Dental School at UMAB.

The following courses are required for admission to the UMAB Dental Hygiene Program:

	Semester Credit Hours
Freshman Year	
ENGL 101: Introduction to Writing	3
BIOL 105: Principle of Biology I	4
CHEM 103. General Chemistry 1	4
CHEM 104: Fundamental of Organic and Biochemistry	4
PSYC 100: Introduction to Psychology	3
SOCY 100 or SOCY 105: Introduction to Sociology or Introduction to Contemporary Social Problems	3
MATH 110 or 115: Elementary Mathematical Models or Precalculus	3
Humanities	3
Elective	3
Sophomore Year	
ZOOL 201 and 202: Human Anatomy & Physiology I, II	4, 4
MICB 200: General Microbiology	4
NUTR 200: Nutrition for Health Service	3
ENGL 291 (or 391 for juniors)	3
Social Sciences	6
SPCH 100 or 107: Basic Principles of Speech Communication or Technical Speech Communication	3
STATE 100: Elementary Statistics & Probability	3

Application and Admission

High school students who wish to enroll in the pre-dental hygiene curriculum at College Park should request applications directly from the Admissions Office, The University of Maryland, College Park, MD 20742. It is recommended that those preparing for a baccalaureate degree program in dental hygiene pursue an academic program in high school which includes biology, chemistry, math, and physics.

Pre-dental hygiene students should begin the application process for professional school in fall of the sophomore year. UMAB applications and instructions are available in the Health Professions Advising Office. Enrollment as a pre-dental hygiene student or as a registered dental hygienist at any institution does not guarantee admission to the Dental Hygiene Program on the Baltimore City Campus (UMAB).

Further Information. At College Park contact the Dental Hygiene Advisor, Room 3103, Turner Building, The University of Maryland, College Park, MA 20742. Telephone: (301) 454-2540. In Baltimore contact the Dental Hygiene Department, The University of Maryland at Baltimore, 666 W. Baltimore Street, Baltimore, MD 21201. Telephone: (301) 328-7773.

Pre-Dentistry

Advisor: Love

The pre-professional program for pre-dental students is a program of advising for students preparing to apply to dental school. The advice is based on requirements and recommendations of American dental schools and the requirements for a baccalaureate degree at College Par

The recommendations made during advising are meant to prepare the student to take the Dental Admissions Test (DAT) in the spring of the junior year. Application to dental school is made during the summer-fall of the senior year. In addition to faculty letters of recommendation, most admissions committees request or require an evaluation from the student's pre-dental advisor. It is important, therefore, for the student to contact the pre-dental advisor early in the academic career and to become familiar with the proper procedures necessary in the evaluation and application process.

For more information on the pre-dental advising program, contact the Pre-dental Advisor, Room 3103, Turner Building, University of Maryland, College Park, MD 20742. Telephone: (301) 454-2540.

There are two ways to prepare for admission to dental school: a four-year program is preferable, but a three-year program is possible.

Four-Year Baccalaureate Program. Most pre-dental students at College Park complete a four-year undergraduate degree prior to entrance into dental school. Students are encouraged to pursue a diversified curriculum, balancing humanities courses with science and mathematics courses. Since there is no required, fixed "pre-dent" curriculum, the pre-dental student may choose an academic major from the variety of approved campus programs in the arts, humanities, behavioral and social sciences, mathematics, or physical and life sciences. No specific major is required, favored, or preferred by dental school admissions committees.

The four-year student will plan an undergraduate experience which includes courses to satisfy major and supporting area requirements, University Studies Program requirements, and the dental school admission requirements. The student's academic advisor will advise about the first two topics, while the Pre-dental Advisor will advise about dental school admission requirements.

Although specific admission requirements vary somewhat from dental school to dental school, the undergraduate courses which constitute the basic admission requirements and which prepare the student for the DAT are the following:

	Semester Credit Hours
ENGL 101,391. English Composition	3, 3
CHEM 103,113. General Chemistry I, II	4, 4
CHEM 233, 243. Organic Chemistry I, II	4, 4
PHYS 121, 122 or PHYS 141, 142. Physics	4, 4
MATH 220, 221 or MATH 140, 141. Calculus	3, 3 or 4, 4
Biology, minimum**(Recommended courses include MICB 200, MICB 380, ZOOL 211, ZOOL 213 or ZOOL 422)	8

*Although calculus is not an entrance requirement of many dental schools and is not included in the DAT, one year of calculus is strongly recommended for the pre-professional student.

**Although the minimum biology requirement is eight credits, the successful applicant will have more, including advanced training in biological sciences at the 300 to 400 level. BOTN 100, BIOL 101 and 124, and MICB 100 should not be taken to meet this requirement.

Three Year Arts-Dentistry Degree Program. Students whose performance during the first two years is exceptional may apply to the University of Maryland School of Dentistry at the beginning of their third year, for entry after three years of college work. By the end of the third year the student must have earned 90 academic credits, exclusive of physical education, the last 30 of which must have been earned at the University of Maryland at College Park. Within the 90 credits the student must have completed all the requirements listed below.

	Semester Credit Hours
A. University Studies Program Requirements	30
B. Chemistry (inorganic and organic) CHEM 103, 113, 233, 243, or CHEM 105, 115, 235, 245	16
C. Biological Sciences ZOOL 210—Animal Diversity ZOOL 211—Cell Biology and Physiology MICB 200—General Microbiology Either ZOOL 213 or MICB 380 One of the following: ZOOL 411—Cell Biology ZOOL 422—Vertebrate Physiology ZOOL 430—Vertebrate Embryology ZOOL 495—Mammalian Histology MICB 360—Medical Virology MICB 440—Pathogenic Microbiology MICB 450—Immunology	19-20
D. Mathematics MATH 220, 221, or MATH 140, 141	68
E. Physics 121, 221, or 141, 142	
F. Additional upper level courses from any one of the following combinations: 1. Zoology—seven hours on the 300-400 level including one laboratory course 2. Microbiology—seven hours on the 300-400 level including one laboratory course 3. CHEM 321—Quantitative Analysis plus any three credit course as the 300-400 level in the physical or biological sciences which is approved by the Pre-Dental Advisor 4. BCHM 461, 462, 463, and 464 5. Nine hours on the 300-400 level in any one department of the College of Arts and Humanities or the College of Behavioral and Social Sciences	7-10
G. Electives as needed to total at least 90 credits	0-4
Total	90-92

Incoming freshmen interested in this three year program are strongly urged to consult the pre-dental advisor before registration for the first semester at College Park.

Students accepted in the combined Arts-Dentistry program, may received the B.S. degree (Arts-Dentistry) after satisfactory completion of the first year at the University of Maryland Dental School on recommendation by the dean of the dental school and approval by the College Park Campus, the degree to be awarded in August following the first year of dental school. The courses of the first year of dental school constitute the major, the College Park courses listing above constitute the supporting area.

Participation in the three year program in no way guarantees admission the University of Maryland Dental School. Three year students compete with the four year students for admission.

Pre-Law

117 Hornbake Library, 454-2733

Advisor: Buhlig

Although some law schools will consider only applicants with a B.A. or B.S. degree, others will accept applicants who have successfully completed a three-year program of academic work. Most law schools do not prescribe specific courses which a student must present for admission, but do require that the student follow one of the standard programs offered by the undergraduate college. Many law schools require that the applicant take the Law School Admission Test, preferably in July or October of the academic year preceding entry into professional school.

Four-Year Program. The student who plans to complete the requirements for the B.A. or B.S. degree before entering law school should select a major field of concentration. Most law schools do not prescribe specific majors or courses which must be presented for admission, but do require that one of the standard programs offered by the undergraduate college be followed. A student's choices can be guided by the need to develop some of the essential skills needed for the law profession, namely, clear and imaginative thinking, accurate and perceptive reading, and literate expression.

Three-Year Arts-Law Program. Although some law schools will consider only applicants with a B.A. or B.S. degree, others will accept applicants who have successfully completed a three-year program of academic work. Students planning to enter law school at the end of the third year should complete the University Studies Program Requirements. By the end of the junior year, the student will complete the requirements for a "minor" (eighteen semester hours in one department, six hours being at the 300–400 level). The program during the first three years should include all of the basic courses required for a degree (including the eighteen-hour "minor" course program) and all University requirements. The academic courses must total ninety hours, and must be passed with a minimum average of

2.0 To be acceptable to law schools, however, students in virtually all cases must have a considerably higher average.

Students with exceptional records who are accepted to the School of Law of the University of Maryland under the arts-law program may receive a B.A. degree (arts-law) after satisfactory completion of the first year of law school, upon recommendation by the dean of the University of Maryland Law School and approval by College Park. The degree is awarded in August following the first year of law school (or after thirty credit hours are completed).

For additional information, contact the Pre-law Advisor, Room 1117, Hornbake Library. Telephone: (301) 454-2733.

Pre-Medical Technology

Advisor: Stewart

College Park students may prepare themselves not only for entrance into the UMAB Medical Technology Program but also for entrance into medical technology programs at other colleges and universities. To do this efficiently, students should obtain program information when first entering college so that requirements can be taken in normal sequence. Information for the University of Maryland Medical Technology Program is available at the Health Professions Advising Office, Room 3103, Turner Laboratory.

A Bachelor of Science degree in Medical Technology is offered through the Medical Technology Program of the University of Maryland Medical School, located in Baltimore (UMAB). The first two years, consisting of pre-professional studies, may be completed at any University of Maryland institution, except UMAB, or at any regionally accredited university or college.

The medical technologist plays a major role in the diagnosis and treatment of disease by applying scientific knowledge and skill to the supervision and accurate performance of complex laboratory and therapeutic procedures. Career opportunities exist for the medical technologist in hospitals, private clinics, pharmaceutical research, government, academics, and sales. The professional curriculum at UMAB includes courses in hematology, clinical chemistry, microbiology, immunology, immunohematology, microscopy, anatomy and physiology, and management. The curriculum at UMAB is designed to train students in the complex technical skills essential for the modern medical technologist, as well as to challenge students to understand the more complex principles underlying their technology. It is essential that students develop skills in the area of oral and written communication and the critical assessment of information.

Application and Admission. *High school students* who wish to enroll in the pre-medical technology curriculum at College Park must meet admission requirements of that institution. While in high school students are encouraged to enroll in a college preparatory curriculum emphasizing biology, chemistry, and college preparatory mathematics.

Pre-medical technology students should begin the application process for professional school in fall of the sophomore year. UMAB applications and instructions are available in the Health Professions Advising Office. *Enrollment as a pre-medical technology student at any campus does not guarantee admission to the Medical Technology Program at Baltimore City (UMAB).*

The following courses are required for admission to the UMAB Medical Technology Program:

	Semester Credit Hours
Chemistry 103, 113: Gen. Chem I, II	4, 4
Chemistry 233, 243: Organic Chem I, II	4, 4
Biology 105: Prin. of Biology I	4
Microbiology 200: Gen. Microbiology	4
Mathematics 110, 111 or above	3, 3
English 101, Intro. to Writing and Literature	3, 3
Speech 107 Tech. Speech Communication or 100	3
Humanities (History, literature, philosophy, appreciation of Art, Music, Drama, Dance)	3
Behavioral and Social Sciences (Anthropology, Economics, Government & Politics, Geography, Psychology, Sociology)	6
Electives *	12
Total Semester Hours	60

* Recommended electives include statistics, computer science, and biochemistry.

Further Information. At College Park, contact the Medical Technology Advisor, The University of Maryland, Room 3103, Turner Laboratory, College Park, MD 20742. Telephone (301)454-2540. In Baltimore, contact the Medical Technology Program, The University of Maryland, Allied Health Professions Building, 32 S. Greene Street, Baltimore, Maryland 21201. Telephone (301) 328-7664.

Pre-Medicine

Advisor: Love

The pre-professional program for pre-medical students is a program of advising for students preparing to apply to medical school. The advice is based on requirements and recommendations of American medical schools and the requirements for a baccalaureate degree at College Park. The pre-medical advisor in the Health Professions Advising Office is prepared to assist students in setting career objectives, selecting undergraduate coursework to meet the admissions criteria of the professional schools, and in all phases of the application process itself.

The recommendations made during advising are meant to prepare the student to take the Medical College Admission Test (MCAT) in the spring of the junior year. Application to medical school is made during the summer-fall of the senior year. Medical admissions committees generally request or require an evaluation from the student's pre-medical advisor. It is important, therefore, for the student to contact the pre-medical advisor early in the academic career and to become familiar with the proper procedures necessary in the evaluation and application process.

For more information on the pre-medical advising program, contact the Pre-medical Advisor, Room 3103, Turner Laboratory, The University of Maryland, College Park, MD 20742. Telephone: (301) 454-2540.

There are two ways to prepare for admission to medical school; a four-year program is preferable, but a three-year program is possible.

Four-Year Baccalaureate Program. Most pre-medical students at College Park complete a four-year undergraduate degree prior to entrance into medical school. Students are encouraged to pursue a diversified curriculum, balancing humanities courses with science and mathematics courses. Since there is no required, fixed "pre-med" curriculum, the pre-medical student may choose an academic major from the variety of approved campus programs in the arts, humanities, behavioral and social sciences, mathematics, or physical and life sciences. No specific major is required, favored, or preferred by medical school admissions committees.

The four-year student will plan an undergraduate experience which includes courses to satisfy major and supporting area requirements, University Studies Program requirements, and the medical school admission requirements. The student's academic advisor will advise about the first two topics, while the pre-medical advisor will advise about medical school admission requirements.

Although specific admission requirements vary somewhat from medical school to medical school, the undergraduate courses which constitute the basic admission requirements and which prepare the student for the MCAT are the following:

	Semester Credit Hours
ENGL 101, 391 —English Composition	3, 3
CHEM 103, 113—General Chemistry I, II	4, 4
CHEM 233, 243—Organic Chemistry I, II	4, 4
PHYS 121, 122, or PHYS 141, 142—Physics	4, 4
MATH 220, 221, or MATH 140, 141—Calculus*	3, 3 or 4, 4
Biology, minimum** (Recommended courses include MICB 200, MICB 380, ZOOL 211, ZOOL 213 or ZOOL 422)	8

* Although calculus is not an entrance requirement of many medical schools and is not included in the MCAT, one year of calculus is strongly recommended for the pre-professional student.

** Although the minimum biology requirement is eight credits, the successful applicant will have more, including advanced training in biological sciences at the 300-400 level. BOTN 100, BIOL 101 and 124, and MICB 100 should be taken to meet this requirement.

Three-Year Arts-Medicine Degree Program. Students whose performance during the first two years is exceptional may apply to the University of Maryland School of Medicine at the beginning of their third year, for entry after three years of college work. By the end of the third year the student must have earned 90 academic credits, exclusive of physical education, the last 30 of which must have been earned at the University of Maryland College Park.

Within the 90 credits the student must have completed all the requirements listed below.

	Semester Credit Hours
A. University Studies Program Requirements	30
B. Chemistry (inorganic and organic)	16
CHEM 103, 113, 233, 243or	
CHEM 105, 115, 235, 245	
C. Biological Sciences	19-20
ZOOL 210—Animal Diversity	
ZOOL 211—Cell Biology and Physiology	
MICB 200—General Microbiology	
Either ZOOL 213 or MICB 380	
One of the following:	
ZOOL 411—Cell Biology	
ZOOL 422—Vertebrate Physiology	
ZOOL 430—Vertebrate Embryology	
ZOOL 495—Mammalian Histology	
MICB 360—Medical Virology	
MICB 440—Pathogenic Microbiology	

MICB 450—Immunology
D. Mathematics 6–8
MATH 220, 221 or MATH 140, 141
E. Physics 121, 122, or 141, 142 8
F. Additional upper-level courses from any one of the following combinations: 7–10
1. Zoology—seven hours on the 300–400 level, including one laboratory course
2. Microbiology—seven hours on the 300–400 level, including one laboratory course
3. CHEM 321—Quantitative Analysis, plus any three-credit course at the 300–400 level in the physical or biological sciences which is approved by the Pre-medical Advisor.
4. BCHM 461, 462, 463, and 464
5. Nine hours on the 300–400 level in any one department of the College of Arts and Humanities or the College of Behavioral and Social Sciences
G. Electives as needed to total at least ninety credits 0–4
Total 90–92

Incoming freshmen interested in this three-year program are strongly urged to consult the Pre-medical Advisor before registration for the first semester at College Park.

Students accepted in the combined arts-medicine program may receive the B.S. degree (arts-medicine) after satisfactory completion of the first year at the University of Maryland Medical School upon recommendation by the dean of the School of Medicine and approval by College Park, the degree to be awarded in August following the first year of medical school. The courses of the first year of medical school constitute the major; the College Park courses listed above constitute the supporting area.

Participation in the three-year program in no way guarantees admission to The University of Maryland School of Medicine. Three-year students compete with the four-year students for admission.

Pre-Nursing

Advisor: Stewart

College Park students may prepare themselves not only for entrance into the University of Maryland nursing program but also for entrance into nursing programs at other colleges and universities. To do this efficiently, students should obtain program information when first entering college so that requirements can be taken in normal sequence. Information for The University of Maryland School of Nursing is available at the Health Professions Advising Office, Room 3103, Turner Laboratory.

The School of Nursing, located in Baltimore (UMAB), offers a four-year program leading to the Bachelor of Science degree in nursing. The first two years of pre-professional courses may be taken at any University of Maryland institution except UMAB, or any other accredited college or university, while the final two years of upper level work are offered only at the School of Nursing.

In addition to the aforementioned generic program, an "RN to BSN" program is offered for registered nurses wishing to earn a BSN. There are several options for completing pre-professional requirements for this program. Interested nurses should contact the "RN to BSN" advisor listed below.

Application and Admission. High school students who wish to enroll in the pre-nursing curriculum at College Park must meet admission requirements of that institution. While in high school students should enroll in a college preparatory curriculum including biology, chemistry, and three units of college preparatory mathematics.

Pre-nursing students should begin the application process for professional school in the fall of the sophomore year. UMAB applications and instructions are available in the Health Professions Advising Office. ***Enrollment as a pre-nursing student at any campus does not guarantee admission to the nursing program at UMAB or UMBC.***

The following courses are required for admission to the University of Maryland School of Nursing. In addition, there is an optional 1-credit internship available.

	Semester Credit Hours
Chemistry 103, 104: General Chemistry I, Fundamentals of Organic and Biochemistry	4, 4
English 101: Introduction to Writing	3
(and 291 or 391) Intermediate Writing or Advanced Composition	3, 3
Biology 105	4
MATH 110 Elementary Mathematical Models or higher	3
Humanities (literature, history, philosophy, math, fine arts, language, speech)*	9
Psychology 100: Introduction to Psychology	3
Sociology 100: Introduction to Sociology or 105: Introduction to Contemporary Social Problems	3
EDHD 320: Human Development Through The Lifespan	3
Other social sciences (sociology, psychology, anthropology, government & politics, economics, geography)	3
Zoology 201, 202: Human Anatomy & Physiology I,II	4, 4
Microbiology 200: General Microbiology	4
Nutrition 200: Nutrition for Health Services	3
Elective	2–3
	59–60

* Courses must include at least one course which is not mathematics or English.

Further information. At College Park contact the Nursing Advisor, Room 3103, Turner Laboratory, College Park, MD 20742. Telephone (301) 454-2540. In Baltimore contact the Director for Admissions, The University of Maryland, School of Nursing, 655 W. Lombard Street, Baltimore, Maryland 21201. Telephone (301) 328-6282. "RN to BSN" advisor: UMBC, 5401 Wilkens Ave., Catonsville, MD 21228 (301) 455-3450

Pre-Optometry

Advisor: Love

Requirements for admission to schools and colleges of optometry vary somewhat, and the pre-optometry student should consult the catalogs of the optometry schools and colleges for specific admission requirements. A minimum of two years of pre-optometry studies is required for admission to all accredited schools, and about half of the schools require a minimum of three years. At present, more than two-thirds of successful applicants hold a bachelor's or higher degree. Students who contemplate admission to optometry schools may major in any program that the University offers, but would be well-advised to write to the optometry schools of their choice for specific course requirements for admission. In general, pre-optometry students should follow a four-year baccalaureate program which includes the following:

	Semester Credit Hours
Biology and Microbiology and Zoology	4–12
Inorganic Chemistry	8
Organic Chemistry	4–8
Physics	8
Math through differential calculus	6
English	6
Psychology	3–6
Statistics	3
Social Sciences	6

The State of Maryland participates in interstate contracts with five schools and colleges of optometry, located in Alabama, Illinois, Pennsylvania, Tennessee, and Texas. The contracts ensure available places in entering classes and provide for partial tuition remission for qualified applicants who are residents of Maryland.

For additional information on pre-optometry studies, contact the Pre-medical Advisor, Room 3103, Turner Laboratory, The University of Maryland, College Park, MD 20742. Telephone: (301) 454-2540.

Pre-Osteopathic Medicine

Advisor: Love

The pre-professional requirements for osteopathic medical school are essentially identical to those for allopathic medical school, and the student is referred to the pre-medicine discussion above.

The State of Maryland participates in an interstate contract with the West Virginia School of Osteopathic Medicine. This contract will ensure available places in entering classes, and will provide for partial tuition remission, for qualified applicants who are residents of Maryland.

For additional information on pre-osteopathy studies, contact the Pre-medical Advisor, Room 3103, Turner Laboratory, The University of Maryland, College Park, MD 20742. Telephone (301) 454-2540.

Pre-Pharmacy

Advisor: Stewart

College Park students may prepare themselves not only for entrance into the UMAB School of Pharmacy but also for entrance into pharmacy programs at other colleges and universities. To do this efficiently, students should obtain program information when first entering college so that requirements can be taken in normal sequence. Information for the University of Maryland School of Pharmacy is available at the Health Professions Advising Office, Room 3103, Turner Laboratory. Also at this location students may read about other schools of pharmacy.

The School of Pharmacy, which is located in Baltimore (UMAB), offers both a 3-year professional program leading to a Bachelor of Science in Pharmacy and a 4-year program leading to a Doctor of Pharmacy degree. Both programs are the same until the third year, when some students are accepted into the Doctor of Pharmacy program. Preprofessional studies may be completed at any University of Maryland institution except UMAB or at another accredited institution. The final three or four years of professional study must be completed in the School of Pharmacy at UMAB.

The purposes of the School of Pharmacy are to train students for the efficient, ethical practice of all branches of pharmacy; to instruct students in general scientific and cultural subjects so they can read critically, express themselves clearly and think logically as members of a profession and citizens of a democracy, and to guide students into productive scholarship and research for the increase of knowledge and techniques in the healing arts of pharmacy.

Application and Admission. Applicants for pre-pharmacy at College Park must meet all admission requirements of that institution. While in high school students are encouraged to enroll in a college preparatory curriculum emphasizing biology, chemistry, and college preparatory mathematics.

Pre-pharmacy students should begin the application process for professional school in fall of the sophomore year. UMAB applications and instructions are available in the Health Professions Advising Office. Applications for other programs must be obtained individually from the respective colleges.

Enrollment as a pre-pharmacy student at any campus does not guarantee admission to the School of Pharmacy on the Baltimore City Campus (UMAB). Students who are uncertain about their chances of admission to professional school are encouraged to consult the advisor.

The following courses are required for admission to the UMAB School of Pharmacy:

	Semester Credit Hours
CHEM 103, 113—General Chemistry I, II	4, 4
CHEM 233, 243—Organic Chemistry I, II	4, 4
MATH 220—Elementary Calculus I	3
BIOL 105—Principles of Biology I	4
PHYS 121, 122—Fundamentals of Physics I, II	4, 4
ENGL 101—Introduction to Writing	3
Other English	3
Humanities (English, Journalism, Fine Arts, Classics, Modern Language, Philosophy, or Speech)	6
Social science (Anthropology, Economics, Geography, History, Government and Politics, Psychology, or Sociology)	6
Additional humanities or social science	6
Electives	5–6
	60–61

Further Information. At College Park contact the Pharmacy Advisor, The University of Maryland, Room 3103, Turner Laboratory, College Park, MD 20742. Telephone (301) 454–2540. In Baltimore, contact Admissions Committee Chairman, The University of Maryland School of Pharmacy, 20 North Pine Street, Baltimore, Maryland 21201. Telephone (301) 328–7650.

Pre-Physical Therapy

Advisor: Stewart

College Park students may prepare themselves not only for entrance into University of Maryland physical therapy programs but also for entrance into physical therapy programs at other colleges and universities. To do this efficiently, students should obtain program information when first entering college so that requirements can be taken in normal sequence. Information for the University of Maryland programs is available at the Health Professions Advising Office, Room 3103, Turner Laboratory. Bulletins from other colleges may be seen at the same location.

The University of Maryland offers two B.S. programs in physical therapy. One is given by the Department of Physical Therapy at Baltimore City (UMAB) and the other is given at Eastern Shore (UMES), in Princess Anne.

For either of these programs, the first two years, consisting of preprofessional studies, may be completed on any University of Maryland institution (except UMAB) or any regionally accredited university or college. It should be noted that the junior year course sequence for the UMAB program begins in summer, while the junior year course sequence for the UMES program begins in the fall.

The professional services of the physical therapist are offered to people who are disabled by illness or accident or were born with a handicap. Clinical practitioners are responsible for the evaluation of each patient's ability, disability, and potential for recovery. The most common areas of disorder include neuromuscular, musculoskeletal, sensory motor, and related cardio-vascular, and respiratory functions.

On the basis of test findings a treatment program is planned and implemented usually within the referral of a licensed physician or dentist with whom the contact is maintained regarding patient care and progress. Treatment techniques include the therapeutic use of heat, cold, water, electricity, light, ultra-sound, massage exercise, and functional training. Instruction is given to the patient, the family, and others who might help during the treatment and convalescent period.

Most physical therapists are employed in hospital clinics, rehabilitation centers, private practice, schools for handicapped children, and nursing homes.

Application and Admission. Applicants for the pre-physical therapy program at College Park must meet all admission requirements for that campus. While in high school students should pursue a college preparatory program. Subjects specifically recommended are biology, chemistry, physics, and three units of college preparatory mathematics.

Pre-physical therapy students should begin the application process for professional school in fall of the sophomore year. UMAB or UMES applications and instructions are available in the Health Professions Advising Office. Applications for other programs must be obtained individually from the respective colleges.

Enrollment as a pre-physical therapy student at any campus does not guarantee admission to the physical therapy programs at either UMAB or UMES. In view of the heavy competition for admission, all applicants are encouraged to apply to several programs. This entails looking at schools in other states and even other geographic regions.

The following courses are required for admission to the UMAB and UMES Physical Therapy Programs:

	Semester Credit Hours	
	UMAB	*UMES*
CHEM 103—General Chemistry I,104*—Fundamentals of Organic and Biochemistry	8	8
PHYS 121, 122—Fundamentals of Physics I, II	8	8
BIOL 105—Principles of Biology I	4	4
ZOOL 201 and/or 202—Human Anatomy & Physiology I, II	4	8
MATH 115		3
MATH 115, 220**	6	
Statistics	3	3
Social Science (Afro-American studies, anthropology, economics, government and politics, urban-studies, sociology, geography, women's studies	3	
PSYC 100—Introduction to Psychology	3	3
Psychology (developmental, abnormal, educational, or personality study recommended)	3	3
ENGL 101—Introduction to Writing	3	3
ENGL 240—Introduction to Literary Forms and 391 or 393—Advanced Composition or Technical Writing		6
SPCH 107—Technical Speech Communication or 100—Basic Principles of Speech Communication	3	3
Arts and humanities (history [not for UMES], literature, foreign language, philosophy, or fine arts)	6	6
Health education		2–3
Physical education		2
Electives***	6	1–2
Total	60	64

* CHEM 113 may be substituted for CHEM 104

** Preferred course, but other selections are possible. See advisor.

*** For the UMAB program no more than two credits of non-theory or skills may be used. Review of introductory courses may not be used if below the required level in biology, chemistry, physics, math, or English.

Further information. At College Park contact the Physical Therapy Advisor, Room 3103, Turner Laboratory, College Park, MD 20742. Telephone: (301) 454–2540. AT UMES, contact Dr. Raymond Blakely, Department of Physical Therapy, UMES, Princess Anne, MD 21853. Telephone: (301) 651–2200, extension 577. In Baltimore contact the Department of Physical Therapy, 32 S. Greene Street, Baltimore, MD 21201. Telephone (301) 328–7720.

Pre-Podiatric Medicine

The pre-professional requirements for podiatric medical school are essentially identical to those for allopathic medical school, and the student is referred to the pre-medicine discussion above.

For additional information on pre-podiatry studies, contact the Premedical Advisor, The University of Maryland, Room 3103, Turner Laboratory, College Park, MD 20742. Telephone: (301) 454-2540.

Campus-wide Programs

Air Force Aerospace Studies Program (ROTC)

2132 Cole Student Activities Bldg., 454-3242

Director: Gillespie
Assistant Professors: Miller, Hughes, Fields, Meyer

The Air Force Reserve Officers Training Corps (ROTC) provides a program for college men and women to earn a commission as a Second Lieutenant in the United States Air Force while completing their University degree requirements.

Two Programs Offered

Four-Year Program. This program is composed of a General Military Course (GMC) and a Professional Officer Course (POC). The first two years (GMC) normally for freshmen and sophomores, give a general introduction to the Air Force and the various career fields. Students enrolled in the GMC program incur no obligation and may elect to discontinue the program at any time. The final two years (POC) are concentrated on the development of management skills and study of American defense policy. Students must compete for acceptance into the POC and are guaranteed a commission upon successful completion of the program. *All students enrolled in the last two years of the program receive approximately $1,000 annually tax free.*

Students in the four-year program who successfully complete the first two years of the program and are accepted into the POC program must attend four weeks of field training at a designated Air Force base during the summer after completing the sophomore year of college. To enter the AFROTC program, one should inform his or her advisor and register for classes in the same manner as for other courses.

Two-Year Program. This program is normally offered to prospective juniors but may be taken by seniors and graduate students. The academic requirements for this program are identical to the final two years of the four-year program. During the summer preceding entry into the program, all candidates must complete a six-week field training at a designated Air Force base.

The Curriculum

General Military Course (GMC)

Freshman year— ARSC 100 (Fall) and ARSC 101 (Spring). In combination these two courses are designed to introduce the student to the roles of the Department of Defense and the U. S. Air Force in the contemporary world through a study of the total force structure, strategic offensive and defensive forces, general purpose forces, and aerospace support forces. Each one-credit course consists of one hour of academic class and one hour of leadership laboratory each week.

Sophomore year— ARSC 200 (Fall) and ARSC 201 (Spring). These two courses provide a study of air power from balloons and dirigibles through the jet age; an historical review of air power employment in military and nonmilitary operations in support of national objectives; and a look at the evolution of air power concepts and doctrine. Each one-credit course consists of one hour of academic class and one hour of leadership laboratory each week.

Professional Officer Course (POC)

Junior year— ARSC 310 (Fall) and ARSC 311 (Spring). Each of these courses consists of three hours of academic classes and one hour of leadership laboratory each week. Here the student is introduced to concepts and skills required by the successful manager and leader. The curriculum includes individual motivational and behavioral processes, leadership, communication, and group dynamics, providing the foundation for the development of the junior officer's professional skills (officership). Course material on the fundamentals of management emphasizes decision making, the use of analytic aids in planning, organizing, and controlling in a changing environment, as necessary professional concepts. Organizational and personal values (ethics), management of change, organizational power, politics, and managerial strategy and tactics are discussed within the context of the military organization. Actual Air Force case studies are used throughout the course to enhance the learning and communication process. ARSC 310 is an approved course for the University Studies Program in the Social and Behavioral Studies area.

Senior year— ARSC 320 (Fall) and ARSC 321 (Spring). Each of these courses consists of three hours of academic classes and one hour of leadership laboratory each week. This course is a study of United States National Security Policy which examines the formulation, organization, and implementation of national security: context of national security, evolution of strategy, management of conflict, and civil-military interaction. It also includes blocks of instruction on the military profession, officership, and the military justice system. The course is designed to provide future Air Force officers with a background of United States National Security Policy so they can effectively function in today's Air Force.

All Aerospace Studies courses are open to any university student for credit whether or not he or she is in the AFROTC Program. Only the AFROTC cadets attend the leadership laboratories. ARSC 320 is an approved course for the University Studies Program in the Social and Behavioral Studies area.

Scholarships Available. The AFROTC College Scholarship Program provides eight, seven, six, five, and/or four semester scholarships to students on a competitive basis. Scholarships are currently available in numerous technical fields and are based on merit and not need. Those selected receive full tuition, lab expenses, incidental fees, and book allowance plus a non-taxable allowance of $100 monthly. (See AFROTC College Scholarship Program below.)

Air Force ROTC Nurse Program. Air Force ROTC makes it possible for qualified applicants of nursing schools to enroll in its programs and, upon completion of all academic and licensing requirements, receive a commission as a Second Lieutenant in the United States Air Force Medical Corps.

General Requirements for Acceptance into the POC. The student must complete the General Military Course and a four-week field training session, or the six-week field training session, pass the Air Force Officer Qualification Test, be physically qualified, be in good academic standing, and meet age requirements. Successful completion of the Professional Officer Course and a bachelor's degree (or higher) are prerequisites for a commission as a Second Lieutenant in the United States Air Force. Additional information may be obtained by telephoning the Office of Aerospace Studies. Telephone 454-3242/43.

Endowed and Annual Scholarships and Grants

AFROTC College Scholarship Program

Air Force ROTC College Scholarships are available on a competitive basis to qualified applicants enrolled in the four- and two-year AFROTC programs. (For a full explanation of Air Force ROTC, see AFROTC under "Financial Aid.") Four through eight semester scholarships are available and are based on merit and not need. These scholarships provide full tuition, laboratory fees, incidental fees, an allowance for textbooks, and a non-taxable allowance of $100 monthly. Any student accepted by The University of Maryland may apply for these scholarships. AFROTC membership is required if one receives an AFROTC scholarship.

Course Code Prefix—ARSC

Study Abroad Programs

2109 Skinner Bldg. 454-8645

Coordinator: Weaver

The goal of the Study Abroad Office is to enable students to incorporate a summer, semester, or year abroad into their degree program at Maryland. Study abroad increases awareness of other cultures and languages while providing a comparative international perspective. Many students find study abroad essential for their major or career plans. Others view it as part of their liberal arts education.

Advising and Information. The Study Abroad Office provides handouts and advising on the wide variety of programs available. A small library provides information on programs offered by other universities. The office assists students in obtaining credit for their experience abroad.

Maryland Study Abroad Semester/Year Programs

Denmark's International Study Program. Maryland acts as a coordinator for DIS in Copenhagen, which offers many liberal arts and business subjects taught in English.

Semester in Israel. From January to May students learn Hebrew and take courses in Jewish and Israeli studies taught in English by faculty members at Tel Aviv University.

Study in London offers courses in the social sciences, business, and the humanities that focus on Britain.

Study in Beijing offers a spring semester of intensive Chinese language from beginner to advanced level.

Study in Brazil offers a summer and fall semester at the Catholic University of Rio to take regular university courses offered in Portuguese.

Summer Programs

Architecture Abroad. The School of Architecture sponsors a six-week program in Western Europe and a program in Turkey which allow students at an advanced undergraduate and graduate level to deal creatively with architectural issues in a foreign environment

Summer in Kassel. The Department of Germanic and Slavic Languages and Literature sponsors a five-week intensive language and culture program in Kassel, West Germany

Exchanges. The Study Abroad Office administers reciprocal exchanges with specific universities overseas. These exchanges are often related to academic departments and require extensive language or academic background. All the exchanges require at least a 3.0 grade point average. Exchanges are available with the following British Universities: University of Kent — for Government and Politics Majors, University of Sheffield — for English Majors, University of Lancaster — for Math Majors, University of Bristol — for Philosophy Majors. In Japan — Keio University in intensive Japanese. In W. Germany — the University of Bremen, the Free University of Berlin, and the Gesamthochschule Kassel.

The Study Abroad Office is in Room 2109, Skinner Building. Telephone: 454-8645.

Undergraduate Certificate Programs

There are five undergraduate certificates currently available: Afro-American Studies, Applied Social Sciences, East Asian Studies, Liberal Arts in Business, and Women's Studies

Afro-American Studies Certificate

College of Behavorial and Social Sciences

2169 Le Frak, 454-5665

The Afro-American Studies Certificate program offers the opportunity to gain a concentration in an interdisciplinary package of courses on the black experience. Courses include such disciplines as anthropology, art, literature, history, public policy, and sociology.

Undergraduates in good standing may apply for the program by contacting Charlotte Gills of the Afro-American Studies Program in Room 2169, LeFrak Hall. Students pursuing the certificate must meet the University Studies Program and department requirements.

To receive the Certificate in Afro-American Studies, students must take twenty-one credit hours stipulated as follows:

(1) Twelve hours of core courses— AASP 100; 200 or 202; AASP 300; and AASP 400 or 401.
(2) Nine hours of electives from 300 or 400 level courses, of which three hours must be taken from courses outside the Afro-American Studies Program and approved by the AASP faculty.
(3) A maximum of three credit hours of special topics or selected topics courses.
(4) A maximum of nine credit hours applied toward a major.
(5) No more than nine credit hours taken at institutions other than UMCP.
(6) A minimum grade of C in each course applied toward the certificate.

Certificate in Applied Social Science

College of Behavioral and Social Sciences

2108 Art/Sociology Bldg., 454-5036

The College of Behavioral and Social Sciences offers an undergraduate certificate program for those students interested in expanding their analytic and research skills in preparation for careers in the public and private sectors. The certificate in applied social science consists of an integrated, interdisciplinary package of courses in research and analytic methods in applied social science which is designed to complement a student's major. Requirements of the program include completion of twenty-one hours of specified courses which include: an introduction to applied behavioral and social sciences, general analytic skills courses, a course in the ethics of social science research, and a structured internship/practicum experience with an integrating seminar.

I. Admission to the Certificate Program

Students may apply for admission to the certificate program any time after completing the introductory course BSOS 200, Introduction to Applied Behavioral and Social Sciences. Selection for admission to the program will be on a competitive basis and will involve criteria such as:

1. Letter of recommendation from instructor in BSOS 200.
2. Statement of career objectives.
3. General academic performance.

II. Certificate Requirements

The program for a Certificate in Applied Social Science requires twenty-one semester hours of academic work including:

1) BSOS 200 — Introduction to Applied Behavioral and Social Sciences - 3 credit hours.
2) Statistics, Methods and Computer Skills - 9 credit hours. Students are required to take at least one course in each of the areas of intermediate statistics, research methods and computer skills. A list of appropriate courses is available from the program advisor.
3) BSOS 300 — Ethical Issues in Social Science Research - 3 credit hours
4) Internship/Practicum and Seminar - 6 credit hours

III. Advising

Advising is a key element of this program. The program advisor is available to work closely with students in selecting courses to fulfill the certificate requirements and to develop internship opportunities that contribute to the student's skill development.

For further information and/or advising on the program, contact Dr. Barbara Altman, Program Director, Room 2108, Art/Sociology Building, 454-5036.

East Asian Studies Certificate

College of Arts and Humanities

2101 Jimenez Hall, 454-4307

The Undergraduate Certificate in East Asian Studies is a twenty-four-credit course of instruction designed to provide specialized knowledge of the cultures, histories, and contemporary concerns of the peoples of China, Japan, and Korea. It will complement and enrich a student's major. The curriculum focuses on language instruction, civilization courses, and electives in several departments and programs of the University. It is designed specifically for students who wish to expand their knowledge of East Asia and demonstrate to prospective employers, the public, and graduate and professional schools a special competence and set of skills in East Asian affairs.

Upon satisfactory completion of the courses, with a grade of C or better in each course, and recommendation by the chairperson of the Committee on East Asian Studies, a certificate will be awarded. A notation of the award of the certificate will be included on the student's transcript. The student must have a baccalaureate degree awarded previous to or simultaneously with an award of the certificate.

Certificate Requirements

Core Courses. The student is required to take:

1. HIST 284—East Asian Civilization I
2. HIST 285—East Asian Civilization II
3. Six semester hours of introduction to one of the following East Asian languages (Chinese, Japanese, or Korean):
   CHIN101—Elementary Chinese I
   JAPN 101—Elementary Japanese I
   Both FOLA 109—Elementary Korean II
   and FOLA 118K—Intermediate Korean I

Students with language competence equivalent to these language courses are exempted from the language requirement; such students are required to complete an additional six hours of electives in East Asian courses to fulfill the twenty-four-credit requirement for the certificate.

Electives. Students must complete at least twelve hours of electives selected from four regular formally approved courses on East Asia in at least two of the following categories: (1) art history, (2) geography, (3) government and politics, (4) history, (5) language, linguistics, and literature, (6) music, (7) sociology, and (8) urban studies. Nine of the twelve hours of electives must be upper division (300–400 level) courses. A maximum of three credit hours of special topics courses on East Asian will be allowed with the approval of the student's certificate adviser. No more than nine credits from any one department may be applied toward the certificate. No more than nine credits applied to the student's major may also apply to the certificate. In addition, no more than nine credits of the courses applied toward the certificate may be transferred from other institutions. Students are asked to work with their advisor in ensuring that the electives maintain an intercollegiate and interdisciplinary focus (at least three disciplines are recommended).

Interested students should contact either Dr. Kenneth Folsom or Dr. Marlene Mayo, Department of History, Francis Scott Key Hall, (301) 454-2843

Liberal Arts in Business Certificate

College of Arts and Humanities

1102 Francis Scott Key Hall, 454-6794

The College of Arts and Humanities offers an interdisciplinary certificate program, the Liberal Arts in Business, for students pursuing any of the traditional majors within the college. Any student in the college of Arts and Humanities may apply for admission to this program which is designed to provide the student with an understanding of the world of business and an awareness of some of the skills needed to compete successfully for entry-level employment in the business world. The core of LAB courses includes special sections of required speech and writing courses, some courses designed especially for the LAB program, Work, Workers, Work Settings (SOCY), The Law and Ethics of Business (BMGT), and Integrated Accounting Budgeting and Planning (BMGT), and some courses open to all students, Economics of Social Problems, Modern Business History. For further information contact Dr. Charles S. Rutherford in the office of the Dean of Arts and Humanities.

Women's Studies Certificate

College of Arts and Humanitites, Wormen's Studies Program

1115 Mill Bldg., 454-3841

The Women's Studies Certificate Program consists of an integrated, interdisciplinary curriculum on women which is designed to supplement a student's major. Any student in good standing may enroll in the certificate program by declaring her/his intention to the Women's Studies undergraduate advisor. For additional information, contact the Women's Studies Office, 454-3841.

To qualify for a certificate in Women's Studies a student must earn twenty-one credits in required Women's Studies core courses and electives. Programs are designed in consultation with the Women's Studies undergraduate advisor. Each student must obtain a grade of C or better in each course that is to be counted toward the certificate.

Of the 21 credits, courses must be distributed as follows:
Nine credit hours from the following WMST courses:

WMST 200 — Introduction to Women's Studies: Women and Society
OR
WMST 250 — Introduction to Women's Studies: Women, Art, and Culture
WMST 400 — Theories of Feminism
WMST 490 — Senior Seminar. Feminist Reconceptualizations

The remaining 12 credit hours consist of courses chosen from 3 of the 4 distributive areas listed below and one elective. Two courses must be from departments other than WMST. One course must be identified as adding a multi-cultural dimension.

Distributive Areas

The content of courses with numbers ending in 8 or 9 may change. Students should check the *Schedule of Classes* to verify each semester's Special Topics offerings.

I.
ARTH 489: Women in Art
CMLT 498: Feminist Literary Criticism
CMLT 498: Special Topics in Women in Literature
ENGL 250: Women in Literature
ENGL 348 Literary Works by Women
FREN 478 French Women Writers in Translation
GERM 439 Women in German Literature
JAPN 418. Japanese Women Writers in Translation
MUSC 448 Women and Music in Cross-Cultural Perspective
WMST 250: Introduction to Women's Studies Women, Art, and Culture

II.
EDCP 498: Issues Related to Counseling Women
FMCD 430: Gender Role Development in the Family
HLTH 471. Women's Health
PSYC 336: Psychology of Women
SOCY 325: Sex Roles
SOCY 425: Sex Roles and Social Institutions
SPCH 425: Communication and Sex Roles
WMST 200: Introduction to Women's Studies: Women and Society

III.
AMST 418: Women and Family in American Life
AASP 428: Black Women in America
CLAS 309: Women in Ancient Greece and Rome
CLAS 320. Women in Classical Antiquity
GERM 281 Women in German Literature and Society
HIST 210: American Women to 1880
HIST 211 American Women 1880 to Present
HIST 301: Women and Industrial Development
HIST 309 Proseminar in History of Women
HIST 318: Women in the Middle East
HIST 458: Selected Topics in Women's History
HIST 618: Readings in the History of Women
PHED 492: History of the American Sportswoman

IV.
AASP 428: EEO Laws: Implications for Women and Minorities
AASP 428: Women and Work
ECON 374 Sex Roles in Economic Life
GVPT 436: Legal Status of Women
GVPT 471. Women and Politics
JOUR 460: Women in the Mass Media
PHED 451: Sport and the American Woman

Internships. Women's Studies internships are available to certificate students and any other interested students. WMST internships enable students to gain practical experience by working as interns for businesses, agencies, and organizations that provide services for women. The internship is a six-credit, two-unit course combining field work with a weekly seminar. The internship program focuses on integrating feminist theory into our understanding of the workplace.

Course Code Prefix: WMST

9 Course Offerings

Course Numbering System

NUMBER ELIGIBILITY

000-099 Non-credit course
100-199 Primarily freshman course
200-299 Primarily sophomore course
300-399 Junior, senior course not acceptable for credit toward graduate degrees.
386-387 Campus-wide internship courses; refer to information describing the office of Experiential Learning in Part 1.
400-499 Junior, senior course acceptable for credit towards some graduate degrees.
500-599 Professional School course (Dentistry, Architecture, Law, Medicine) or postbaccalaureate course.
600-899 Course restricted to graduate students
799 Masters Thesis credit.
899 Doctoral Dissertation credit

Courses with last digit of 8 or 9 can be repeated for additional credit.

AASP — Afro-American Studies

AASP 100 Introduction to Afro-American Studies (3) Significant aspects of the history of Afro-Americans with particular emphasis on the evolution and development of black communities from slavery to the present. Interdisciplinary introduction to social, political, legal and economic roots of contemporary problems faced by blacks in the United States with applications to the lives of other racial and ethnic minorities in the Americas and in other societies.

AASP 101 Public Policy and the Black Community (3) Formerly AASP 300. The impact of public policies on the black community and the role of the policy process in affecting the social, economic and political well-being of minorities. Particular attention given to the post-1960 to present era.

AASP 200 African Civilization (3) A survey of African civilizations from 4500 B.C. to present. Analysis of traditional social systems. Discussion of the impact of European colonization on these civilizations. Analysis of the influence of traditional African social systems on modern African institutions as well as discussion of contemporary processes of Africanization.

AASP 202 Black Culture in the United States (3) The course examines important aspects of American Negro life and thought which are reflected in Afro-American literature, drama, music and art. Beginning with the cultural heritage of slavery, the course surveys the changing modes of black creative expression from the nineteenth-century to the present.

AASP 298 Special Topics in Afro-American Studies (3) An introductory multi-disciplinary and inter-disciplinary educational experience to explore issues relevant to black life, cultural experiences, and political, economic and artistic development. May be repeated to a maximum of six credits if subject matter is different.

AASP 301 Applied Policy Analysis and the Black Community (3) Prerequisite: AASP 101. Recommended: one semester of statistics. Development and application of the tools needed for examining the effectiveness of alternative policy options confronting minority communities. Review policy research methods used in forming and evaluating policies. Examination of the policy process.

AASP 303 Computer Applications in Afro-American Studies (3) Prerequisite: STAT 100 or SOCY 201 or MATH 111 or equivalent. Introduction to statistics and database processing software used in model estimation and simulation in policy analysis. Special emphasis on applications for applied research on policy problems confronting minority communities.

AASP 305 Theoretical, Methodological and Policy Research Issues in Afro-American Studies (3) Prerequisite: AASP 101 or permission of department. Formerly AASP 401. Theories and concepts in the social and behavioral sciences relating to problems in minority communities. Issues include validity and soundness of theoretical arguments, epistemological questions of various methodologies and the relationship between policy making and policy research.

AASP 310 African Slave Trade (3) Formerly AASP 311. The relationship of the slave trade of Africans to the development of British capitalism and its industrial revolution, and to the economic and social development of the Americas.

AASP 312 Social and Cultural Effects of Colonization and Racism (3) A comparative approach to the study of the social and cultural effects of colonization and racism on black people in Africa, Latin America and in the United States--community and family life, religion, economic institutions, education and artistic expression.

AASP 397 Senior Thesis (3) Prerequisites: AASP 305; and permission of department. Directed research in Afro-American Studies resulting in the completion and defense of a senior thesis.

AASP 400 Directed Readings in Afro-American Studies (3) The readings will be directed by the Director of Afro-American Studies. Topics to be covered, the topics will be chosen by the director to meet the needs and interests of individual students.

AASP 402 Classic Readings in Afro-American Studies (3) Classic readings of the social, economic and political status of blacks and other minorities in the United States and the Americas.

AASP 410 Contemporary African Ideologies (3) Analysis of contemporary African ideologies. Emphasis on philosophies of Nyerere, Nkrumah, Senghor, Sekou Toure, Kaunda, Cabral, et al. Discussion of the role of African ideologies on modernization and social change.

AASP 411 Black Resistance Movements (3) A comparative study of the black resistance movements in Africa and America, analysis of their interrelationships as well as their impact on contemporary pan-Africanism.

AASP 441 Science, Technology, and the Black Community (3) Prerequisite: AASP 100 or AASP 202 or HIST 255 or permission of department. Scientific knowledge and skills in solving technological and social problems, particularly those faced by the black community. Examines the evolution and development of African and Afro-American contributions to science. Surveys the impact of technological changes on minority communities.

AASP 443 Blacks and the Law (3) Prerequisite: AASP 100 or AASP 202 or HIST 255 or permission of department. The relationship between black Americans and the law, particularly criminal law, criminal institutions and the criminal justice system. Examines historical changes in the legal status of blacks and changes in the causes of racial disparities in criminal involvement and punishments.

AASP 497 Policy Seminar in Afro-American Studies (3) Prerequisite: AASP 305 or permission of department. Application of public policy analysis to important social problems and policy issues affecting black Americans. Policy research and analysis procedures through an in-depth study of a critical, national black policy issue.

AASP 498 Special Topics in Black Culture (3) Prerequisite: AASP 100 or AASP 202. Repeatable to 6 credits if content differs. Advanced study of the cultural and historical antecedents of contemporary African and Afro-American society. Emphasis on the social, political, economic and behavioral factors affecting blacks and their communities. Topics vary.

AASP 499 Advanced Topics in Public Policy and the Black Community (3) Prerequisite: AASP 301 or permission of department. Repeatable to 6 credits if content differs. Examination of specific areas of policy development and evaluation in black and other communities. Application of advanced tools of policy analysis, especially quantitative, statistical and micro-economic analysis.

AEED — Agricultural and Extension Education

AEED 200 Environmental Interpretation (3) The natural history concepts and conservation practices useful for understanding natural and man-modified environments of the mid-Atlantic region. Three arranged weekend field trips.

AEED 302 Introduction to Agricultural Education (2) An overview of the job of the teacher of agriculture; examination of agricultural education programs for youth and adults.

AEED 303 Teaching Materials and Demonstrations (2) Principles and practices of the demonstration method; construction and use of visual aids in teaching agriculture.

AEED 305 Teaching Young and Adult Farmer Groups (1) Characteristics of young and adult farmer instruction in agriculture. Determining needs for and organizing a course, selecting materials for instruction, and class management. Emphasis is on the conference method of teaching.

AEED 311 Teaching Secondary Vocational Agriculture (3) A comprehensive course in the work of high school departments of vocational agriculture. It emphasizes particularly placement, supervised farming programs, the organization and administration of future farmer activities, and objectives and methods in all-day instruction.

AEED 313 Student Teaching (5) Prerequisite: satisfactory academic average and permission of instructor. Full-time student teaching in an off-campus student teaching center under an approved supervising teacher of agriculture, participating experience in all aspects of the work of a teacher of agriculture.

AEED 315 Student Teaching (1-4) Prerequisite: satisfactory academic average and permission of instructor. Full-time observation and participation in work of teacher of agriculture in off-campus student teaching center. Provides students opportunity to gain experience in the summer program of work, to participate in opening of school activities, and to gain other experience needed by teachers.

AEED 322 An Introduction to Adult and Continuing Education (3) This course introduces students to the field of nonformal adult and continuing education. It examines the social functions, studies the critical issues, explores career opportunities and surveys some of the nonformal adult education delivery systems.

AEED 323 Developing Youth Programs (3) A study of concepts involved in planning and executing programs developed to meet the needs of youth especially those living in rural and suburban areas. Emphasis will be placed on the identification of attitudes, needs, and problems of youth in all socio-economic levels. An analysis of methods or working with youth groups and developing volunteer leaders will also be included.

AEED 325 Directed Experience in Extension Education (1-5) Prerequisite: satisfactory academic average and permission of instructor. Full-time observation and participation in selected aspects of extension education in an approved training county.

AEED 327 Program Planning in Extension (3) Studies concepts involved in planning, execution and evaluation of educational programs. Students will apply the concepts while assisting with the planning and evaluation of programs. Special emphasis will also be given to extension education.

AEED 389 Selected Topics (1-3) May be repeated to a maximum of six credits provided the content is different.

AEED 398 Seminar in Agricultural Education (1) Examination of current literature, reports and discussions of problems, trends, and issues in agricultural education.

AEED 423 Extension Communications (3) An introduction to communications in teaching and within an organization, including barriers to communication, the diffusion process and the application of communication principles person to person, with groups and through mass media

AEED 426 Development and Management of Extension Youth Programs (3) Designed for present and prospective state leaders of extension youth programs Program development, principles of program management, leadership development and counseling, science, career selection and citizenship in youth programs, field experience in working with youth from low income families, urban work

AEED 427 Group Dynamics in Continuing and Extension Education (3) Concepts involved in working with groups planning extension and continuing education programs Analysis of group behavior and group dynamics related to small groups and development of a competence in the selection of appropriate methods and techniques

AEED 464 Rural Life in Modern Society (3) The historical and current nature of rural and agricultural areas and communities in the complex structure and culture of U S society Basic structural, cultural, and functional concepts for analyses and contrasts of societies and the organizations and social systems within them

AEED 466 Rural Poverty in an Affluent Society (3) Factors giving rise to conditions of rural poverty Problems faced by the rural poor Programs designed to alleviate rural poverty

AEED 488 Critique in Rural Education (1) Current problems and trends in rural education

AEED 489 Field Experience (1-4) Prerequisite permission of department Repeatable to 4 credits Planned field experience for both major and non-major students

AEED 499 Special Problems (1-3) Prerequisite staff approval

AGRI — Agriculture

AGRI 101 Introduction to Agriculture (1) Required of all beginning freshmen and sophomores in agriculture Other students must get the consent of the instructor A series of lectures introducing the student to the broad field of agriculture

AGRI 489 Special Topics in Agriculture (1-4) Credit according to time scheduled and organization of the course A lecture series organized to study in depth a selected phase of agriculture not normally associated with one of the existing programs

AGRO — Agronomy

AGRO 100 Crops Laboratory (2) Four hours of laboratory per week Demonstration and application of practices in the identification, distribution and management of field crops

AGRO 102 Crop Production (2) Pre- or corequisite AGRO 100 Culture, use, improvement, adaptation, distribution, and history of field crops

AGRO 105 Soil and the Environment (3) A study of soils as an irreplaceable natural resource, importance of soils in the ecosystem, and analysis of land resource areas in the U S Discussion of soils as a pollutant and the pollution of soils by various agents and the role of soil as a medium for storage, decontamination or inactivation of pollutants

AGRO 302 General Soils (4) Two hours of lecture and three hours of laboratory per week Prerequisite CHEM 103 or permission of department A study of the fundamentals of soils including their origin, development, relation to natural sciences, effect on civilization, physical properties, and chemical properties

AGRO 303 International Crop Production (3) Prerequisite BOTN 100 or equivalent An introduction to the biological dimension of world hunger The problems and potentials for increasing world food supply based on current agronomic knowledge Emphasis on international aspects of food crop production and the interrelationships between agriculture and human populations in the developing world

AGRO 398 Senior Seminar (1) Reports by seniors on current scientific and practical publications pertaining to agronomy

AGRO 403 Crop Breeding (3) Prerequisite BOTN 414 or ZOOL 213 Principles and methods of breeding annual self and cross-pollinated plant and perennial forage species

AGRO 404 Tobacco Production (3) Prerequisite BOTN 100 A study of the history, adaptation, distribution, culture, and improvement of various types of tobacco, with special emphasis on problems in Maryland tobacco production Physical and chemical factors associated with yield and quality of tobacco will be stressed

AGRO 405 Turf Management (3) Two hours of lecture and three hours of laboratory per week Prerequisite BOTN 100 A study of principles and practices of managing turf for lawns, golf courses, athletic fields, playgrounds, airfields and highways for commerical sod production

AGRO 406 Forage Crop Production (3) Pre- or corequisites BOTN 101 and AGRO 100 A general look at world grasslands, production and management requirements of major grasses and legumes for quality hay, silage and pasture for livestock feed new cultivar development and release, seed production and distribution of improved cultivars

AGRO 407 Cereal and Oil Crops (3) Pre- or corequisites BOTN 101 and AGRO 100 A study of principles and practices of corn small grains, rice, millets sorghums, and soybeans and other oil seed crops A study of seed production, processing distribution and federal and state seed control programs of corn, small grains and soybeans

AGRO 411 Soil Fertility Principles (3) Prerequisite AGRO 302 A study of the chemical, physical, and biological characteristics of soils that are important in growing crops Soil deficiencies of physical, chemical, or biological nature and their correction by the use of lime, fertilizers, and rotations are discussed and illustrated

AGRO 412 Commercial Fertilizers (3) Prerequisite AGRO 302 or permission of department A study of the manufacturing of commercial fertilizers and their use in soils for efficient crop production.

AGRO 413 Soil and Water Conservation (3) Two hours of lecture and three hours of laboratory per week Prerequisite AGRO 302 or permission of department A study of the importance and causes of soil erosion, methods of soil erosion control, and the effect of conservation practices on soil-moisture supply Special emphasis is placed on farm planning for soil and water conservation The laboratory period will be largely devoted to field trips

AGRO 414 Soil Classification and Geography (4) Three hours of lecture and three hours of laboratory per week Prerequisite AGRO 302 or permission of department Processes and factors of soil genesis Taxonomy of soils of the world by U S System Laboratory covers soil morphological characteristics, composition, classification survey and field trips to examine and describe soils

AGRO 415 Soil Survey and Land Use (3) Two hours of lecture and three hours of laboratory per week Prerequisite AGRO 302. Evaluation of soils in the uses of land and the environmental implications of soil utilization. Interpretation of soil information and soil surveys as applied to both agricultural and non-agricultural problems. Incorporation of soil data into legislation, environmental standards and land use plans

AGRO 417 Soil Physics (3) Two hours of lecture and three hours of laboratory per week Prerequisites AGRO 302 and a course in physics or permission of department A study of physical properties of soils with special emphasis on relationship to soil productivity

AGRO 421 Soil Chemistry (3) Two hours of lecture and three hours of laboratory per week Prerequisite AGRO 302 or permission of department A study of the chemical composition of soils, cation and anion exchange, acid, alkaline and saline soil conditions; and soil fixation of plant nutrients Chemical methods of soil analysis will be studied with emphasis on their relation to fertilizer requirements

AGRO 422 Soil Biochemistry (3) Two hours of lecture and three hours of laboratory per week Prerequisite AGRO 302, CHEM 104 or permission of department A study of biochemical processes involved in the formation and decomposition of organic soil constitutents Significance of soil-biochemical processes involved in plant nutrition will be considered

AGRO 423 Soil-Water Pollution (3) Prerequisites AGRO 302 and CHEM 104 or permission of department Reaction and fate of pesticides, agricultural fertilizers, industrial and animal wastes in soil and water with emphasis on their relation to the environment

AGRO 451 Cropping Systems (2) Prerequisite AGRO 102 or equivalent The coordination of information from various courses in the development of balanced cropping systems, appropriate to different objectives in various areas of the state and nation

AGRO 453 Weed Control (3) Two hours of lecture and three hours of laboratory per week Prerequisite AGRO 102 or equivalent A study of the use of cultural practices and chemical herbicides in the control of weeds

AGRO 483 Plant Breeding Laboratory (2) Prerequisites AGRO 403 and permission of department Current plant breeding research being conducted at The University of Maryland and USDA at Beltsville Discussion with plant breeders about pollination techniques, breeding methods, and program achievements and goals Field trips to selected USDA laboratories

AGRO 499 Special Problems in Agronomy (1-3) Prerequisites AGRO 302 AGRO 406 AGRO 407 or permission of department A detailed study including a written report of an important problem in agronomy

AMST — American Studies

AMST 201 Introduction to American Studies I (3) Introduction to American cultural studies: past and present by examining the concept of self in American autobiographical writing and the concept of 'society' in accounts of various communities

AMST 203 Popular Culture in America (3) An introduction to American popular culture: its historical development and its role as a reflection of and influence on our culture and society

AMST 204 Film and American Culture Studies (3) Exploration of the American film from an historical perspective illustrating the motion picture's role as an institutional phenomenon as a form of communication, and as a source of cross cultural study

AMST 205 Material Aspects of American Life (3) Historical survey of American material culture Ways of describing and interpreting accumulated material evidence e g Buildings town plans introduced by stressing relationship between artifact and culture

AMST 206 Business and American Culture Studies (3) Investigates the traditional definitions of personal success, the process of corporate rituals and the role of innovation found with American business since 1945. The course places the contemporary discussion of business within the context of national and global sociocultural changes by applying organizational theory, historical studies and anthropological field work to an analysis of audiotapes videotapes, films and popular literature

AMST 207 Contemporary American Cultures (3) World views values and social systems of contemporary American cultures explored through readings on selected groups such as middle-class suburbanites, old order Amish, and urban tramps

AMST 298 Selected Topics in American Studies (3) Cultural study of a specific theme or issue involving diversified artifacts and documents from both past and contemporary American experience Course may be repeated to a maximum of six hours if the subject is different

AMST 330 Critics of American Culture (3) Philosophies of American social purpose and promise Readings from 'classical' American thinkers, contemporary social commentators and American studies scholars

AMST 360 Fieldwork in American Studies (3) Prerequisite permission of instructor Supervised field research on the built environment social structure, and belief systems of local groups in the College Park Washington, or Baltimore vicinity

AMST 398 Independent Studies (1-3) Prerequisite permission of instructor Provides the student with the opportunity to pursue independent interdisciplinary research and reading in specific areas of American culture studies May be repeated for a maximum of six credits

AMST 418 Cultural Themes in America (3) Examination of structure and development of American culture through themes such as "the dynamics of change and conflict" "culture and mental disorders" "race" "ethnicity" "regionalism" "landscape" "humor" Repeatable to a maximum of six credits

AMST 426 Culture and the Arts in America (3) Analysis of development of American cultural institutions and artifacts Emphasis on relationship between intellectual and esthetic climate and the institutions and artifacts

AMST 428 American Cultural Eras (3) Investigation of a decade period or generation as a case study in significant social change within an American context Case studies include "Puritan dynamics in American culture 1630 1700" "Antebellum America 1840 1860" "American culture in the Great Depression" Repeatable to a maximum of six credits

AMST 429 Perspectives on Popular Culture (3) Topics in popular culture studies including the examination of particular genres themes and issues Repeatable to a maximum of six credits

AMST 432 Literature and American Society (3) Examination of the relationship between literature and society including literature as cultural communication and the institutional framework governing its production distribution conservation and evaluation

AMST 450 Seminar in American Studies (3) Prerequisite permission of instructor Developments in theories and methods of American studies scholarship with emphasis upon interaction between the humanities and the social sciences in the process of cultural analysis and evaluation

AMST 498 Special Topics in American Studies (3) Prerequisite a course in American history, literature, or government, or consent of the instructor Topics of special interest Repeatable to a maximum of 6 credits when topics differ

ANSC — Animal Science

ANSC 101 Principles of Animal Science (3) Two lectures and one two-hour laboratory period per week A comprehensive course, including the development of animal science, its contributions to the economy, characteristics of animal products factors of efficient and economical production and distribution

ANSC 201 Basic Principles of Animal Genetics (3) Lecture (3 credits) three lectures per week The basic principles and laws of Mendelian genetics as applied to economically important domestic animals Molecular genetics including DNA RNA genetic code and the regulation of protein synthesis Other topics stressed include linkage and crossing over, recombination, cytological maps, chromosomal aberrations, mutations, population genetics and genetic counseling

ANSC 203 Feeds and Feeding (3) Two lectures and one laboratory period per week Credit not allowed for ANSC major Prerequisites CHEM 103, 104 Elements of nutrition, source, characteristics and adaptability of the various feedstuffs to the several classes of livestock A study of the composition of feeds, the nutrient requirements of farm animals and the formulation of economic diets and rations for livestock

ANSC 211 Anatomy of Domestic Animals (4) Three lectures and one laboratory per week Prerequisite ZOOL 101 A systematic gross and microscopic comparative study of the anatomy of the major domestic animals Special emphasis is placed on those systems important in animal production.

ANSC 212 Applied Animal Physiology (3) Prerequisite ANSC 211 or equivalent The physiology of domesticated animals with emphasis on functions related to production, and the physiological adaptation to environmental influences

ANSC 214 Applied Animal Physiology Laboratory (1) One three-hour laboratory per week Pre- or corequisite ANSC 212 Application of physiological laboratory techniques to laboratory and domestic animals Not open to students who have credit for ANSC 212 prior to spring 1977.

ANSC 221 Fundamentals of Animal Production (3) Two lectures and one laboratory period per week Prerequisite ANSC 101 The adaptation of beef cattle, sheep, swine and horses to significant and specific uses. Breeding, feeding, management practices and criteria for evaluating usefulness are emphasized

ANSC 222 Livestock Evaluation (3) Two lectures and one laboratory period per week Prerequisite, ANSC 221 or permission of instructor A study of type and breed characteristics of beef cattle, sheep and swine and the market classes of livestock which best meet present day demands One field trip of about two days duration is made during which students participate in the annual eastern intercollegiate livestock clinic

ANSC 223 Career and Curriculum Planning Seminar (1) One meeting per week Presentation of information relating to all specialized areas of the animal sciences with orientation toward career development and curriculum planning Discussions and reports will be included

ANSC 230 Light Horse Management (4) Three lectures and one two-hour laboratory period per week Prerequisite: ANSC 101 A general course in horse management for students who intend to be involved in the care and management of light horses The principles of nutrition, anatomy, physiology, health and disease, growth, reproduction, locomotion and basic management techniques

ANSC 242 Dairy Production (3) Prerequisite ANSC 101 A comprehensive course in dairy breeds, selection of dairy cattle, dairy cattle nutrients, feeding and management

ANSC 244 Dairy Cattle Type Appraisal (1) Two laboratory periods Freshmen, by permission of instructor Analysis of dairy cattle type with emphasis on the comparative judging of dairy cattle

ANSC 252 Introduction to the Diseases of Wildlife (2) Two lectures per week Prerequisite ZOOL 101 The principal diseases of North American wildlife will be briefly considered For each disease, specific attention will be given to the following signs evidenced by the affected animal or bird, causative agent, means of transmission and effects of the disease on the population of the species involved Also included where appropriate is a consideration of the threat that each disease may pose to man or his domestic animals

ANSC 261 Advanced Poultry Judging (1) One lecture or laboratory period per week Prerequisite ANSC 101 The theory and practice of judging and culling by physical means is emphasized, including correlation studies of characteristics associated with productivity Contestants for regional collegiate judging competitions will be selected from this class

ANSC 262 Commercial Poultry Management (3) Prerequisite ANSC 101 A symposium of finance, investment Plant layout Specialization, purchase of supplies and management problems in baby chick egg, broiler and turkey production, foremanship, advertising, selling By products, production and financial records Field trips required

ANSC 265 Fundamentals of Pet Nutrition (2) Two lecture hours per week A basic course on the nutrition of these animals commonly kept as household pets Designed to acquaint students with minimal science background with the basic principles and techniques of animal nutrition

ANSC 301 Advanced Livestock Evaluation (2) Two laboratory periods per week Prerequisites ANSC 222 and permission of instructor An advanced course in meat animal evaluation designed to study the relationship and limitations that exist in evaluating breeding and market animals and the relationship between the live market animal and its carcass Evaluating meat carcesses, wholesale meat cuts and meat grading will be emphasized The most adept students enrolled in this course are chosen to represent The University of Maryland in intercollegiate judging contests

ANSC 305 Companion Animal Care (3) Prerequisites a semester of zoology or general biology General information, care, and management of the companion small animals Species covered include the cat, dog, rodents, lagomorphs, reptiles, amphibians, birds and others as class interest and schedule dictate Basic description, evolutionary development, breeding, nutritional and environmental requirements, and public health aspects will be presented for each species.

ANSC 321 Goat Management and Diseases (3) Prerequisite ANSC 101, 221, OR 242 Caprine biology and management including breeds, anatomy, physiology, reproduction, nutrition, lactation, diseases and surgical techniques Special emphasis on comparing the caprine to other ruminants with respect to similarities and differences in biology, physiology and management

ANSC 322 Rabbit Production (3) Two lectures and one two-hour laboratory per week Prerequisite: ANSC 101 or permission of instructor Application of animal science principles to the management and production of domestic meat-type rabbits Occasional field trips

ANSC 327 Principles of Breeding I (4) Three lecture hours and one two-hour discussion period per week Prerequisite ANSC 201 Population and quantitative genetics as applicable to domestic livestock concepts of variation, heredity, inbreeding and relationship principles of genetic evaluation and selection for livestock improvement, breeding systems and programs Theoretical aspects and applications

ANSC 332 Horse Management (3) Prerequisite ANSC 230 Major topics include nutrition, reproduction, breeding, performance evaluation, basic training and management techniques

ANSC 337 The Science of Horse Training (2) Summer only Prerequisites: ANSC 230, 332, and permission of instructor Major topics include evaluation of behavioral repertory, use of positive and negative reinforcement, successive approximation, as techniques for the basic training of the horse The basic training to include teaching an untrained horse to lunge, accept tack, drive, be mounted and perform certain movements while being ridden

ANSC 350 Ornithology (4) Three lectures and one three-hour laboratory period per week Three mandatory field trips Prerequisites: ZOOL 290 or permission of instructor Includes systematics, anatomy, physiology, behavior, life histories, ecology, population dynamics, evolution and conservation of birds May not be taken for credit by students who have credit in ANSC 454

ANSC 370 Animal Agriculture: Scientific and Cultural Perspectives (3) Three lectures per week Prerequisites one course in biological science Study will focus on the enhancement of biological efficiency that permits more extensive options for choice of human activities, within the limitations of ecological constraints The course examines the growth of knowledge, of both cultural and scientific origin, as applied in the development of successful human-animal systems

ANSC 398 Seminar (1) Prerequisite approval of the staff Presentation and discussion of current literature and research work in animal science, or in fish and wildlife management Repeatable to a maximum of two hours

ANSC 399 Special Problems in Animal Science (1-2) Prerequisite approval of staff Work assigned in proportion to amount of credit A course designed for advanced undergraduates in which specific problems relating to animal science will be assigned

ANSC 401 Fundamentals of Nutrition (3) Prerequisite CHEM 104 ANSC 212 and BCHM 261 recommended A study of the fundamental role of all nutrients in the body including their digestion, absorption and metabolism Dietary requirements and nutritional deficiency syndromes of laboratory and farm animals and man

ANSC 402 Applied Animal Nutrition (3) Two lectures and one laboratory period per week Prerequisites MATH 110, ANSC 401 or permission of instructor A critical study of these factors which influence the nutritional requirements of ruminants, swine and poultry Practical feeding methods and precedures used in formulation of economically efficient rations will be presented

ANSC 406 Environmental Physiology (3) Prerequisites anatomy and physiology The specific anatomical and physiological modifications employed by animals adapted to certain stressful environments will be considered Particular emphasis will be placed on the problems of temperature regulation and water balance Specific areas for consideration will include animals in cold (including hibernation), animals in dry heat, diving animals and animals in high altitudes

ANSC 407 Advanced Dairy Production (1) An advanced course primarily designed for teachers of vocational agriculture and county agents It includes a study of the newer discoveries in dairy cattle nutrition, breeding and management

ANSC 412 Introduction to Diseases of Animals (3) Two lectures and one laboratory period per week Prerequisite MICB 200 and ZOOL 101 This course gives basic instruction in the nature of disease including causation, immunity, methods of diagnosis, economic importance, public health aspects and prevention and control of the common diseases of sheep, cattle, swine, horses and poultry

ANSC 413 Laboratory Animal Management (3) A comprehensive course in care and management of laboratory animals. Emphasis will be placed on physiology, anatomy and special uses for the different species Disease prevention and regulations for maintaining animal colonies will be covered Field trips will be required

ANSC 415 Parasitic Diseases of Domestic Animals (3) Two lectures and one laboratory per week Prerequisite ANSC 412 or equivalent A study of parasitic diseases resulting from protozoan and Helminth infection and arthroped infestation Emphasis on parasites of veterinary importance their identification, life cycles, pathological effects and control by management

ANSC 416 Wildlife Management (3) Two lectures and one laboratory An introduction to the interrelationships of game birds and mammals with their environment, population dynamics and the principles of wildlife management

ANSC 421 Swine Production (3) Two hours of lecture and four hours of laboratory per week Prerequisites ANSC 101, 221, and ANSC 203 or 401 A study of swine production systems including the principles of animal science for the efficient and economical management of swine breeding, feeding, reproduction and marketing

ANSC 422 Meats (3) Two lectures and one laboratory period per week Prerequisite ANSC 221 A course designed to give the basic facts about meat as a food and the factors influencing acceptability, marketing, and quality of fresh meats It includes comparisons of characteristics of live animals with their carcasses, grading and evaluating carcasses as well as wholesale cuts, and the distribution and merchandising of the nation's meat supply Laboratory periods are conducted in packing houses, meat distribution centers, retail outlets and University Meats Laboratory

ANSC 423 Beef Production (3) One lecture and two laboratory periods per week Prerequisite ANSC 401. Application of various phases of animal science to the management and production of beef cattle, sheep and swine

ANSC 424 Sheep Production (3) Two hours of lecture and four hours of laboratory per week Prerequisites. ANSC 101, ANSC 221, and ANSC 203 or 401 A study of sheep production systems including the principles of animal science for the efficient and economical management of sheep breeding, feeding, reproduction and marketing

ANSC 425 Herpetology (3) Two hours of lecture and four hours of laboratory per week Prerequisites ANSC 101, ANSC 221, and ANSC 203 or 401 A study of beef production systems including the principles of animal science for the efficient and economical management of beef breeding, feeding, reproduction and marketing

ANSC 427 Principles of Breeding II (3) Prerequisites ANSC 327 and BIOM 401 or permission of instructor Advanced theory of quantitive and population genetics applicable to the artificial evolution of domestic livestock

ANSC 430 Topics in Equine Science (4) Three lectures and one two-hour discussion period per week Prerequisites: ANSC 211, 212, 230 Pre- or corequisite, ANSC 401 Specific problems of importance to the equine industry, including such areas as nutrition, physiology, anatomy, genetics and pathology

ANSC 431 Horse Production (2) One lecture and one two-hour laboratory per week Laboratory and assigned project to be performed at University of Maryland Horse Farm, Ellicott City, Md Prerequisite ANSC 101, 210, 211, 230 and consent of department Field trips Application of equine science principles to the management and production of horses

ANSC 432 Breeding Farm Management (2) One lecture and one two-hour laboratory per week Prerequisite ANSC 211, 212, 230 and consent of department Animal equine science principles in the management of equine breeding establishments Field trips

ANSC 443 Physiology and Biochemistry of Lactation (3) Prerequisites ANSC 212 or equivalent and CHEM 261 or CHEM 461 Three lectures per week The physiology and biochemistry of milk production in domestic animals, particularly cattle Mammary gland development and maintenance from the embryo to the fully developed lactating gland Abnormalities of the mammary gland

ANSC 444 Analysis of Dairy Production Systems (3) Prerequisites AREC 406 and ANSC 203 or 214 or permission of instructor The business aspects of dairy farming including an evaluation of the costs and returns associated with each segment The economic impact of pertinent management decisions is studied Recent developments in animal nutrition and genetics, agricultural economics, agricultural engineering, and agronomic practices are discussed as they apply to management of a dairy herd

ANSC 446 Physiology of Mammalian Reproduction (3) Prerequisite ZOOL 422 or ANSC 212 Anatomy and physiology of reproductive processes in domesticated and wild mammals

ANSC 447 Physiology of Mammalian Reproduction Laboratory (1) Pre- or corequisites ANSC 446 One three-hour laboratory per week Animal handling, artificial insemination procedures and analytical techniques useful in animal management and reproductive research Not open to students who have credit for ANSC 446 prior to fall 1976

ANSC 452 Avian Physiology (2) (Alternate even years) one three-hour laboratory period per week Prerequisites a basic course in animal physiology The basic physiology of the bird is discussed, excluding the reproductive system Special emphasis is given to physiological differences between birds and other vertebrates

ANSC 462 Physiology of Hatchability (1) Two lectures and one laboratory period per week Prerequisite ZOOL 421 or 422 The physiology of embryonic development as related to principles of hatchability and problems of incubation encountered in the hatchery industry are discussed

ANSC 463 Nutrition Laboratory (2) Prerequisite ANSC 401/NUSC 402 or concurrent registration Six hours of laboratory per week Digestibility studies with ruminant and monogastric animals, proximate analysis of various food products, and feeding trials demonstrating classical nutritional deficiencies in laboratory animals

ANSC 464 Poultry Hygiene (3) Two lectures and one laboratory period per week Prerequisites MICB 200 and ANSC 101 Virus, bacterial and protozoan diseases, parasitic diseases, prevention, control and eradication

ANSC 466 Avian Anatomy (3) Two lectures and one laboratory period per week Prerequisite ZOOL 210 Gross and microscopic structure, dissection and demonstration

ANSC 467 Poultry Breeding and Feeding (1) This course is designed primarily for teachers of vocational agriculture and extension service workers The first half will be devoted to problems concerning breeding and the development of breeding stock The second half will be devoted to nutrition

ANSC 477 Poultry Products and Marketing (1) This course is designed primarily for teachers of vocational agriculture and county agents It deals with the factors affecting the quality of poultry products and with hatchery management problems, egg and poultry grading, preservation problems and market outlets for Maryland poultry

ANSC 480 Special Topics in Fish and Wildlife Management (3) Three lectures Analysis of various state and federal programs related to fish and wildlife management This would include fish stocking programs, Maryland deer management program, warm water fish management, acid drainage problems, water quality, water fowl management, wild turkey management and regulations relative to the administration of these programs

ANSC 487 Special Topics in Animal Science (1) Prerequisite permission of instructor This course is designed primarily for teachers of vocational agriculture and extension service personnel One primary topic to be selected mutually by the instructor and students will be presented each session

ANTH — Anthropology

ANTH 101 Introduction to Anthropology: Archaeology and Physical Anthropology (3) May be taken for credit in the general education program General patterns of the development of human culture the biological and morphological aspects of man viewed in his cultural setting

ANTH 102 Introduction to Anthropology: Cultural Anthropology and Linguistics (3) Social and cultural principles as exemplified in ethnographic descriptions The study of language within the context of anthropology

ANTH 103 Introduction to Primate Social Behavior (3) An introduction of the primate socialization process as evidenced in the prosimians, monkeys, apes and humans Social organization, function and ecology will be stressed within the framework of modern ethology

ANTH 221 Man and Environment (3) A geographical introduction to ethnology, emphasizing the relations between cultural forms and natural environment

ANTH 241 Introduction to Archaeology (3) A survey of the basic aims and methods of archeological field work and interpretation, with emphasis on the reconstruction of prehistoric ways of life

ANTH 261 Introduction to Physical Anthropology (3) The biological evolution of man, including the process of race formation, as revealed by the study of the fossil record and observation of modern forms

ANTH 271 Language and Culture (3) A non-technical introduction to linguistics, with special consideration of the relations between language and other aspects of culture (Listed also as HESP 121)

ANTH 298 Special Topics in Anthropology (3) Anthropological perspectives on selected topics of broad general interest Course may be repeated to a maximum of six credits when course content differs

ANTH 361 Human Evolution and Fossil Man (3) A survey of the basic principles of human evolution as seen by comparative anatomic study of fossil specimens

ANTH 371 Introduction to Linguistics (3) Introduction to the basic concepts of modern descriptive linguistics Phonology, morphology syntax Examinations of the methods of comparative linguistics, internal reconstruction, dialect geography

ANTH 389 Research Problems (1-6) Prerequisite permission of instructor Introductory training in anthropological research methods The student will prepare a paper embodying the results of an appropriate combination of research techniques applied to a selected problem in any field of anthropology

ANTH 397 Anthropological Theory (3) Prerequisite permission of instructor A survey of the historical development and current emphasis in the theoretical approaches of all fields of anthropology, providing an integrated frame of reference for the discipline as a whole

ANTH 401 Cultural Anthropology: Principles and Processes (3) Prerequisite ANTH 101, 102 or 221 An examination of the nature of human culture and its processes, both historical and functional The approach will be topical and theoretical rather than descriptive

ANTH 402 Cultural Anthropology: World Ethnography (3) Prerequisite ANTH 101 102 or 221 A descriptive survey of the culture areas of the world through an examination of the ways of selected representative societies

ANTH 412 Peoples and Cultures of Oceania (3) A survey of the cultures of Polynesia, Micronesia, Melanesia and Australia Theoretical and cultural-historical problems will be emphasized

ANTH 414 Ethnology of Africa (3) Prerequisites ANTH 101 and 102 The native peoples and cultures of Africa and their historical relationships, with emphasis on that portion of the continent south of the Sahara

ANTH 417 Peoples and Cultures of the Far East (3) A survey of the major sociopolitical systems of China, Korea and Japan Major anthropological questions will be dealt with in presenting this material

ANTH 423 Ethnology of the Southwest (3) Prerequisites ANTH 101 and 102 Culture history, economic and social institutions, religion, and mythology of the Indians of the southwest United States

ANTH 424 Ethnology of North America (3) Prerequisites ANTH 101 and 102 The native people and cultures of North America north of Mexico and their historical relationships, including the effects of contact with European-derived populations

ANTH 426 Ethnology of Middle America (3) Prerequisites ANTH 101 and 102 Cultural background and modern social, economic and religious life of Indian and Mestizo groups in Mexico and central America, processes of acculturation and currents in cultural development

ANTH 431 Social Organization of Primitive Peoples (3) Prerequisites ANTH 101 and 102 A comparative survey of the structures of non-literate and folk societies covering both general principles and special regional developments

ANTH 434 Religion of Primitive Peoples (3) Prerequisites ANTH 101 and 102 A survey of the religious systems of primitive and folk societies with emphasis on the relation of religion to other aspects of culture

ANTH 436 Primitive Technology and Economy (3) A survey of technology, food economy and general economic processes in non-industrial societies

ANTH 437 Politics and Government in Primitive Society (3) A combined survey of politics in human societies and of important anthropological theories concerning this aspect of society

ANTH 441 Archaeology of the Old World (3) Prerequisite ANTH 101 or 241 A survey of the archaeological materials of Europe, Asia and Africa, with emphasis on chronological and regional interrelationships

ANTH 451 Archaeology of the New World (3) Prerequisite ANTH 101 or 241 A survey of the archaeological materials of North and South America with emphasis on chronological and regional interrelationships

ANTH 461 Human Osteology Laboratory (3) Prerequisite ANTH 101 A laboratory study of the human skeleton, its morphology measurement, and anatomic relationships

ANTH 462 Primate Anatomy Laboratory (3) Prerequisite ANTH 101 The gross anatomy of non human primates Laboratory dissection of various primate cadavers under supervision Occasional lectures

ANTH 463 Primate Studies (3) Prerequisite ANTH 101 A combination lecture and laboratory examination of non-human primates Major studies of various types that have been undertaken in the laboratory and in the field

ANTH 465 Human Growth and Constitution (3) Prerequisite ANTH 101 A laboratory study of the growth, development and age changes in the human body from conception through old age, including gross photographic, radiographic, and microscopic study of growth and variation

ANTH 466 Forensic Anthropology Laboratory (3) Prerequisite ANTH 461 or permission of the instructor A laboratory study of the methods used to identify human remains by anthropological techniques and discussion of the role of the anthropologist in medico-legal investigation

ANTH 467 Human Population Biology Laboratory (3) Prerequisite ANTH 101 A laboratory study of human population genetics, dynamics and variation, including anthropological serology biochemistry dermatoglyphics and hair microscopy

ANTH 498 Field Methods in Ethnology (1-6) Field training in the collection and recording of ethnological data

ANTH 499 Field Methods in Archaeology (1-6) Field training in the techniques of archaeological survey and excavation

APDS — Applied Design

APDS 101 Fundamentals of Design (3) Knowledge of basic art elements and principles gained through design problems which employ a variety of media

APDS 102 Design II (3) Prerequisite APDS 101 Continued exploration of design as a means of visual expression with added emphasis on color and lighting

APDS 103 Design III: Three-Dimensional Design (3) Pre- or co-requisite APDS 102 Creative efforts directed to discriminating use of form, volume, depth, and movement

APDS 104 Survey of Design History (3) A general introduction to, and historical development of the design fields from 1850 to the present Examination of the influence of design on our lives and our environment with emphasis on western culture

APDS 210 Presentation Techniques I (3) Three two-hour studio periods Prerequisites APDS 103 or equivalent Open only to advertising design majors Emphasis on basic drawing including the human figure and illustration techniques used in several areas of graphic design

APDS 211 Action Drawing: Fashion Sketching (3) Three studio periods Prerequisites APDS 101 and consent of instructor Study of the balance and proportion of the human figure Sketch techniques applied to action poses and fashion drawing in soft and lithograph pencils, pastels, water color ink Drawing from model

APDS 212 Design Workshop For Transfers (5) Prerequisite APDS 101 or equivalent Provides opportunity for transfer students to remove deficiences in lower level design courses Study of color lighting and presentation techniques May be taken no later than one semester after transfer into department

APDS 237 Photography (3) One lecture, two hours studio and two hours of photo laboratory per week Prerequisites APDS 101 102 or equivalent Study of fundamental camera techniques Exploration of the expressive possibilities in relation to the field of design and visual communication

APDS 320 Fashion Illustration (3) First semester Three studio periods Prerequisites APDS 101 102, 103 210, 211 Fabric and clothing structure as they relate to illustration Opportunity to explore rendering styles and techniques appropriate to reproduction methods currently used in advertising Guidance in development of individuality in presentations

APDS 330 Typography and Lettering (3) Three studio periods Prerequisites APDS 101 102 Experience in hand lettering techniques as a means of understanding lettering styles in design composition Recognition of type faces used in advertisement book and magazine layout Effect of printing processes on design choices

APDS 331 Advertising Layout (3) Three studio periods Prerequisites: APDS 330, EDIT 160 Design of advertising layouts from initial idea to finished layout Typography and illustration as they relate to reproduction processes used in direct advertising

APDS 332 Display Design (3) Three studio periods Prerequisites: EDIT 160, APDS 330 or equivalent Application of design principles to creative display appropriate to exhibits, design shows, merchandising Display construction

APDS 337 Advanced Photography (3) Two two-hour studio periods plus two hours of photo laboratory per week Prerequisite: APDS 237 Composition, techniques and lighting applicable to illustration, documentation, advertising design, and display

APDS 380 Professional Seminar (3) Prerequisite: consent of instructor Open only to advertising design majors Professional and career opportunities, ethics, practices, professional organizations, portfolio evaluation

APDS 430 Advanced Problems in Advertising Design (3) Two studio periods Prerequisite: APDS 331 Advanced problems in design and layout planned for developing competency in one or more areas of advertising design

APDS 431 Advanced Problems in Advertising Design (3) Two studio periods Prerequisite: APDS 430 Advanced problems in design and layout planned for developing competency in one or more areas of advertising design

APDS 437 Advanced Photography (3) Three studio periods Continuation of APDS 337

APDS 499 Individual Problems in Applied Design (3-4) Written consent of instructor Open only to advanced students who, with guidance, can work independently.

ARCH — Architecture

ARCH 170 Introduction to the Built Environment (3) Introduction to conceptual, perceptual, behavioral and technical aspects of environmental design; methods of analysis, problem solving and project implementation

ARCH 217 Technology, Human Settlements, and Shelter (3) A survey of developments in technology through history and their impacts and influences on the form and fabric of human settlements and shelter. Emphasis on the technologies most relative to examples of buildings in cities in North America and Europe

ARCH 220 History of Architecture I (3) Survey of Western architectural history to the Renaissance With consideration of parallel developments in the Eastern World

ARCH 221 History of Architecture II (3) Prerequisite: ARCH 220 or permission of the instructor Survey of Western architectural history from the Renaissance to the Twentieth Century With consideration of parallel developments in the Eastern World

ARCH 222 History of Western Architecture (3) Prerequisite: ARCH 170 or permission of instructor Survey of the major monuments and styles of western architectural history from the ancient world to the twentieth century. Not available for credit to students who have taken ARCH 220 or ARCH 221. Not available for credit to students who have taken ARTH 340 or ARTH 341

ARCH 240 Basic Photography (3) One and one-half hours lecture and four hours laboratory per week Introduction to black and white cameras and darkroom techniques with emphasis on the role of craft decisions in photographic communication Architectural applications Architecture students only, except by permission of instructor

ARCH 242 Drawing I (2) Introduces the student to basic techniques of sketching and use of various media

ARCH 250 Survey of Urban Planning (3) A survey of urban development and planning, ancient through modern cities, focus on the roots of modern planning in 19th and 20th century England and America, study of a planning issue in the Baltimore-Washington Metropolitan area

ARCH 312 Architectural Structures I (3) Prerequisites: MATH 220, and PHYS 122 Recommended: ARCH 401. For ARCH majors only Principles of behavior displayed in architectural structural systems, elements and materials, equilibrium and stability, distribution of forces and stresses, strength and stiffness Resolutions of forces, reactions, movements, shears, deflection, and buckling of systems and elements

ARCH 313 Environmental Control and Systems I (3) Prerequisites: MATH 220, PHYS 122, ARCH 401 For majors only Theory, quantification, and architectural design applications for mechanical systems and acoustics

ARCH 343 Drawing II: Line Drawing (2) Studio, four hours per week Prerequisite: ARCH 400 or permission of instructor Basic free hand line drawing for architectural perception and design

ARCH 352 The Architect in the Community (3) The architect's role in the social and political dynamics of urban environmental design decision-making processes, including study of determination and expression of user needs, community aspirations, formal and informal program and design review processes Seminar 1 hour per week field observation, approximately 3 hours per week

ARCH 372 Signs, Symbols and Messages in Architecture (3) Limited to architecture students or by permission of the instructor Class limited to 15-20 students Signs and symbols in buildings and cities; messages conveyed and purposes for conveying these messages Readings, photographic reports and minor problem-solving assignments Lecture, three hours per week

ARCH 375 Architectural Construction and Materials (3) Prerequisites: MATH 220, PHYS 122. For majors only Construction processes of building; related terminology; review of primary building materials; physical characteristics, use and performance of materials as related to environmental forces

ARCH 376 The Architectural Program As Functional Form Generator (3) A study of architectural programming as derived from functional needs of man in his environment Analysis, synthesis and evaluation of categories of needs with concentration on human response to forms generated by programs with emphasis on non-quantifiable human needs Architecture majors or by permission of the instructor Lectures, seminars, field trips, 3 hours per week

ARCH 400 Architecture Studio I (6) Three hours of lecture and nine hours of studio per week Introduction to the processes of visual and architectural design including field problems For architecture majors only

ARCH 401 Architecture Studio II (6) Three hours of lecture and nine hours of studio per week Prerequisite: ARCH 400 with a grade of C or better Continuation of ARCH 400 For architecture majors only

ARCH 402 Architecture Studio III (6) Three hours of lecture and nine hours of studio per week Prerequisite: ARCH 401 with a grade of C or better Design projects involving the elements of environmental control, basic structural systems, building processes and materials. For architecture majors only

ARCH 403 Architecture Studio IV (6) Three hours of lecture and nine hours of studio per week Prerequisite: ARCH 402 with a grade of C or better Design projects involving forms generated by different structural systems, environmental controls and methods of construction For architecture majors only

ARCH 408 Selected Topics in Architecture Studio (1-6) Prerequisite: ARCH 403, or equivalent, and permission of instructor. Topical problems in architecture and urban design Repeatable to a maximum of 6 credits provided the content is different

ARCH 412 Architectural Structures II (3) Prerequisites: ARCH 312, ARCH 400 For majors only Design of steel, timber, and reinforced concrete elements, and subsystems, analysis of architectural building systems Introduction to design for both natural and man-made hazards

ARCH 414 Solar Energy Applications For Buildings (3) Prerequisite: ARCH 313 or permission of instructor Methods of utilizing solar energy to provide heating, cooling, hot water, and electricity for buildings and related techniques for reducing energy consumption

ARCH 415 Environmental Control and Systems II (3) Prerequisites: ARCH 313, ARCH 402 For majors only Theory, quantification, and architectural design applications for water systems, fire protection, electrical systems, illumination, signal equipment, and transportation systems

ARCH 418 Selected Topics in Architectural Science (1-4) Prerequisite: consent of instructor Repeatable to a maximum of 7 credits, provided content is different

ARCH 419 Independent Studies in Architectural Science (1-4) Proposed work must have a faculty sponsor and receive approval of the curriculum committee Repeatable to a maximum of 7 credits.

ARCH 420 History of American Architecture (3) Prerequisite: ARCH 221 or permission of instructor. American architecture from the late 17th to the 20th century

ARCH 421 Seminar in the History of American Architecture (3) Prerequisite: ARCH 420 or permission of instructor Advanced investigation of historical problems in American architecture

ARCH 422 History of Greek Architecture (3) Prerequisite: ARCH 222 or permission of the instructor Survey of Greek architecture from 750-100 B C

ARCH 423 History of Roman Architecture (3) Prerequisite: ARCH 222 or permission of the instructor Survey of Roman architecture from 500 B C To A D 325.

ARCH 427 Theories of Architecture (3) Prerequisite: ARCH 221, or permission of instructor Selected historical and modern theories of architectural design For architecture majors only

ARCH 428 Selected Topics in Architectural History (1-3) Prerequisite: consent of instructor Repeatable to a maximum of 7 credits, provided the content is different

ARCH 429 Independent Studies in Architectural History (1-4) Proposed work must have a faculty sponsor and receive approval of the curriculum committee Repeatable to a maximum of 6 credits

ARCH 432 History of Medieval Architecture (3) Prerequisite: ARCH 221 or permission of instructor Architecture of western Europe from the early Christian and Byzantine periods through the late Gothic, with consideration of parallel developments in the eastern world

ARCH 433 History of Renaissance Architecture (3) Prerequisite: ARCH 221 or permission of instructor Renaisssance architectural principles and trends in the 15th and 16th centuries and their modifications in the Baroque period

ARCH 434 History of Modern Architecture (3) Prerequisite: ARCH 221, or permission of instructor Architectural trends and principles from 1750 to the present, with emphasis on developments since the mid-19th century

ARCH 435 Seminar in the History of Modern Architecture (3) Prerequisite: ARCH 434 or permission of instructor Advanced investigation of historical problems in modern architecture

ARCH 436 History of Islamic Architecture (3) Survey of Islamic architecture from the seventh through the eighteenth century

ARCH 437 History of Pre-Columbian Architecture (3) Architecture of Pre-Columbian Mexico and Central America from the Pre-Classic Period through the Spanish conquest

ARCH 442 Studies in Visual Design (3) Prerequisite: ARCH 401 Studio work in visual design independent of architectural problem solving

ARCH 443 The Photography of Architecture (3) One and one-half hours lecture and four hours laboratory per week Prerequisite: ARCH 344 Examination of the meaning of documentation and the use of photography in the evaluation of architecture Architecture students only, except by permission of the instructor

ARCH 445 Visual Analysis of Architecture (3) Two hours of lecture and two hours of studio per week Prerequisites: ARCH 401 and ARCH 343, or permission of the instructor Visual principles of architectural design through graphic analysis

ARCH 447 Advanced Seminar in Photography (3) Prerequisites: ARCH 340 or APDS 337 or JOUR 351, and consent of instructor Advanced study of photographic criticism through empirical methods, for students proficient in photographic skills Photographic assignments, laboratory, seminar, 3 hours per week

ARCH 448 Selected Topics in Visual Studies (1-4) Prerequisite: consent of instructor Repeatable to a maximum of 7 credits, provided the content is different

ARCH 449 Independent Studies in Visual Studies (1-4) Proposed work must have a faculty sponsor and receive approval of the curriculum committee Repeatable to a maximum of 6 credits

ARCH 450 Introduction to Urban Planning (3) Introduction to city planning theory, methodology and techniques, dealing with normative, urban, structural, economic, social aspects of the city; urban planning as a process. Architectural majors or by permission of the instructor Lecture, seminar, 3 hours per week

ARCH 451 Urban Design Seminar (3) Prerequisite: ARCH 350 or permission of the instructor Advanced investigation into problems of analysis and evaluation of the design of urban areas, spaces and complexes with emphasis on physical and social considerations, effects of public policies, through case studies Field observations

ARCH 453 Urban Problems Seminar (3) Prerequisite: permission of instructor A case study of urban development issues, dealing primarily with socio-economic aspects of changes in the built environment

ARCH 454 Theories of Urban Form (3) Theories of planning and design of urban spaces, building complexes, and new communities

ARCH 458 Selected Topics in Urban Planning (1-4) Prerequisite: consent of instructor Repeatable to a maximum of 7 credits, provided the content is different

ARCH 459 Independent Studies in Urban Planning (1-4) Proposed work must have a faculty sponsor and receive approval of the curriculum committee Repeatable to a maximum of 6 credits

ARCH 460 Site Analysis and Design (3) Principles and methods of site analysis, the influence of natural and man-made site factors on site design and architectural form For architecture majors only, or by permission of instructor

ARCH 461 Design and Energy (3) Prerequisite: ARCH 402 and ARCH 415. Two hours of seminar, two hours of laboratory each week Energy strategies in building related to the broader context of architectural problem solving.

ARCH 470 Computer Applications in Architecture (3) Prerequisite: ARCH 400 or permission of instructor. Introduction to computer programming and utilization, with emphasis on architectural applications.

ARCH 472 Economic Determinants in Architecture (3) Introduction to economic factors influencing architectural form and design, including land economics, real estate, financing, project development, financial planning, construction and cost control.

ARCH 478 Selected Topics in Architecture (1-4) Prerequisite: consent of instructor. Repeatable to a maximum of 7 credits, provided the content is different.

ARCH 479 Independent Studies in Architecture (1-4) Proposed work must have a faculty sponsor and receive approval of the curriculum committee. Repeatable to a maximum of 6 credits.

ARCH 480 Problems and Methods of Architectural Preservation (3) Prerequisite: ARCH 420 or permission of instructor. Theory and practice of preservation in America, with emphasis on the problems and techniques of community preservation.

ARCH 481 The Architect in Archaeology (3) Prerequisite: consent of instructor. The role of the architect in field archaeology and the analysis of excavating, recording and publishing selected archaeological expeditions.

ARCH 482 The Archaeology of Roman and Byzantine Palestine (3) Archaeological sites in Palestine (Isreal and Jordan) from the reign of Herod the Great to the Moslem conquest.

ARCH 483 Field Archaeology (3) Prerequisite: consent of the instructor. Participation in field archaeology with an excavation officially recognized by proper authorities of local government.

ARCH 488 Selected Topics in Architectural Preservation (1-4) Prerequisite: consent of instructor. Repeatable to a maximum of seven credits, provided the content is different.

ARCH 489 Independent Studies in Architectural Preservation (1-4) Proposed work must have a faculty sponsor and receive approval of the curriculum committee. Repeatable to a maximum of 6 credits.

AREC — Agriculture and Resource Economics

AREC 227 Marketing Agricultural Products (3) The development of marketing, its scope, channels, and agencies of distribution, functions, costs, methods used and services rendered.

AREC 240 Environment and Human Ecology (3) Costs and social impacts of pollution and human crowding in the modern environment. The economic, legal and institutional causes of these problems. Public policy approaches to solutions and the costs and benefits of alternative solutions.

AREC 250 Elements of Agricultural and Resource Economics (3) An introduction to economic principles of production, marketing, agricultural prices and incomes, farm labor, credit, agricultural policies, and government programs.

AREC 306 Farm Management (3) The organization and operation of the farm business to obtain an income consistent with family resources and objectives. Principles of production economics and other related fields as applied to the individual farm business. Laboratory period will be largely devoted to field trips and other practical exercises.

AREC 310 Horse Industry Economics (3) Prerequisite: ANSC 230 and 332. An introduction to the economic forces affecting the horse industry and to the economic tools required by horse farm managers, trainers, and others in the industry.

AREC 353 Land Resource Economics (3) A study of the adequacy and quality of the natural (land, water, air) and human resources, the economic and institutional arrangements which guide their use and development, and the means for improving their quality and use.

AREC 365 World Hunger, Population, and Food Supplies (3) An introduction to the problem of world hunger and possible solutions to it. World demand, supply, and distribution of food. Alternatives for leveling off world food demand, increasing the supply of food, and improving its distribution. Environmental limitations to increasing world food production.

AREC 398 Seminar (1) Students will obtain experience in the selection, Preparation and presentation of economic topics and problems which will be subjected to critical analysis.

AREC 399 Special Problems (1-2) Concentrated reading and study in some phase of problem in agricultural economics.

AREC 404 Prices of Agricultural Products (3) Prerequisite: ECON 403. An introduction to agricultural price behavior. The use of price information in the decision-making process, the relation of supply and demand in determining agricultural prices, and the relation of prices to grade, time, location, and stages of processing in the marketing system. Elementary methods of price analysis, the concept of parity and the role of price support programs in agricultural decisions.

AREC 405 Economics of Agricultural Production (3) Prerequisites: ECON 403 and MATH 220. The use and application of production economics in agriculture and resource industries through graphical and mathematical approaches. Production functions, cost functions, multiple product and joint production, and production processes through time.

AREC 407 Agricultural Finance (3) Prerequisite: AREC 250. Application of economic principles to develop criteria for a sound farm business, including credit source and use, preparing and filing income tax returns, methods of appraising farm properties, the summary and analysis of farm records, leading to effective control and profitable operation of the farm business.

AREC 414 Agricultural Business Management (3) Prerequisite: AREC 250. The different forms of businesses. Management functions, business indicators, measures of performance, and operational analysis. Case studies are used to show applications of management techniques course in.

AREC 427 Economics of Agricultural Marketing Systems (3) Prerequisite: AREC 250. Basic economic theory as applied to the marketing of agricultural products, including price, cost, and financial analysis. Current developments affecting market structure including effects of contractual arrangement, vertical integration, governmental policies and regulation.

AREC 432 Introduction to Natural Resources Policy (3) Development of natural resource policy and analysis of the evolution of public intervention in the use of natural resources. Examination of present policies and of conflicts between private individuals, public interest groups, and government agencies.

AREC 433 Food and Agricultural Policy (3) Prerequisite: AREC 250. Economic and political context of governmental involvement in the farm and food sector. Historical programs and current policy issues. Analysis of economic effects of agricultural programs, their benefits and costs, and comparison of policy alternatives. Analyzes the interrelationship among international development, agricultural trade and general economic and domestic agricultural policies.

AREC 445 Agricultural Development in the Third World (3) Prerequisite: ECON 203 or ECON 205 or AREC 250. Development theories, the role of agriculture in economic development, the agricultural policy environment, policies impacting on rural income and equity, environmental impacts of agricultural development.

AREC 453 Natural Resources and Public Policy (3) Prerequisites: AREC 250 or ECON 203. Rational use and reuse of natural resources. Theory, methodology, and policies concerned with the allocation of natural resources among alternative uses. Optimum state of conservation, market failure, safe minimum standard, and cost-benefit analysis.

AREC 484 Introduction to Econometrics in Agriculture (3) An introduction to the application of econometric techniques to agricultural problems with emphasis on the assumptions and computational techniques necessary to derive statistical estimates, test hypotheses, and make predictions with the use of single equation models. Includes linear and non-linear regression models, internal least squares, discriminant analysis and factor analysis.

AREC 489 Special Topics in Agricultural and Resources Economics (3) Repeatable to a maximum of 9 credits.

AREC 495 Honors Reading Course in Agricultural and Resource Economics I (3) Selected readings in political and economic theory from 1700 to 1850. This course develops a basic understanding of the development of economic and political thought as a foundation for understanding our present society and its cultural heritage. Prerequisite: acceptance in the honors program of the department of agricultural and resource economics.

AREC 496 Honors Reading Course in Agricultural and Resource Economics II (3) Selected readings in political and economic theory from 1850 to the present. This couse continues the development of a basic understanding of economic and political thought begun in AREC 495 by the examination of modern problems in agricultural and resource economics in the light of the material read and discussed in AREC 495 and AREC 496. Prerequisite: successful completion of AREC 495 and registration in the honors program of the department and resource economics.

ARHU — Arts and Humanities

ARHU 308 Critical Eras: An Interdisciplinary View (3) An interdisciplinary exploration of a critical period, ranging from a year to an era, stressing the relationship between different forms of human expression and the social milieu. Repeatable to a maximum of six hours.

ARHU 309 Forms and Forces of Human Experience: An Interdisciplinary Exploration (3) Prerequisite: one course in at least one of the departments participating in the particular section. An interdisciplanary analysis of a particular social or cultural topic, attitude, or concern. Repeatable to a maximum of six credits.

ARHU 318 Cross-Cultural Analysis of Human Questions: An Interdisciplinery Approach (3) Prerequisite: one course in at least one of the departments participating in the particular section. An interdisciplinary analysis of a selected social or cultural topic, attitude or concern in two or more cultures. Repeatable to a maximum of six credits.

ARHU 319 Human Understanding in Interdisciplinary Perspective (3) Prerequisite: one course in at least one of the departments participating in the particular section. An interdisciplinary analysis of the methodology of humanistic knowledge and aesthetic expression, and of the assumptions underlying differing interpretations. Repeatable to a maximum of six credits.

ARSC — Air Science

ARSC 100 The Air Force Today I (1) One hour of lecture and one hour of laboratory per week. Study of U.S. Air Force in contemporary society. Survey of Air Force doctrine, mission, organization and systems. Freshman course for AFROTC Cadets. Open to all university students.

ARSC 101 The Air Force Today II (1) Continuation of ARSC 100. The mission, organization and systems of U.S. Air Force offensive, defensive, and aerospace support forces and the use of these forces to support contemporary societal demands. Freshman year course for AFROTC cadets. Open to all university students.

ARSC 110 Fundamentals of Flying (1) A study of basic aviation knowledge for the beginning student pilot. The basic principles of flight, simple aerodynamics, a description of aircraft systems and flight instruments, federal aviation regulations, basic meteorology, the use of the flight computer for simple flight computations and visual flight operations (VFR).

ARSC 200 The Development of Air Power I (1) Development of air power from balloons and dirigibles through employment in World War I and II. Chronological approach to growth of air power in response to civil and military requirements. Sophomore year course for AFROTC cadets. Open to all university students.

ARSC 201 The Development of Air Power II (1) One hour of lecture and one hour of laboratory per week. Growth and development of air power and aerospace support forces from 1945 in response to Korea, the Cold War, Southeast Asia, and the Space Age. The peaceful employment of aerospace forces for relief and civic action program. Sophomore year course for AFROTC cadets. Open to all university students.

ARSC 205 The U.S. Air Force and Air Power (4) Open only to applicants selected by AFROTC to compete for entrance into the two-year AFROTC program as a contract cadet. Six week field training session held during summer months at designated Air Force bases. Successful completion is a pre-requisite for acceptance into the two year AFROTC program. Course content consists of a combination of academics, physical training and leadership laboratory experiences approximating those four year cadets gain in ARSC 100/101 and ARSC 200/201.

ARSC 310 Management and Leadership I (3) Study of management functions, techniques and skills. Emphasis on application of same in laboratory environment structured to approximate a contemporary military or bureaucratic organization. Junior year course for AFROTC cadets. Open to all university students.

ARSC 311 Management and Leadership II (3) Continuation in study and application of management and leadership skills to a contemporary military environment. Emphasis on leadership, the uniform code of military justice and current issues for the military manager and leader. Junior year course for AFROTC cadets. Open to all university students.

ARSC 320 National Security Forces in Contemporary American Society I (3) The role of the military profession in contemporary American society, its responsibilities to society and its impact on society. The definition, development and alteration of defense policy in supporting national objectives. Senior year course for AFROTC cadets. Open to all university students.

ARSC 321 National Security Forces in Contemporary American Society II (3) A continuation of the study on the formulation, development and alteration of strategy and of the factors in the modern world which necessitate the continuous reassessment of American defense policy. Investigation of the interplay of various governmental agencies in the formulation of American defense policy. Senior year AFROTC course. Open to all university students.

ARTE — Art Education

ARTE 100 Fundamentals of Art Education (3) Two hours of laboratory and two hours of lecture per week. Fundamental principles of the visual arts for teaching on the elementary level. Elements and principles of design and theory of color. Studio practice in different media.

ARTH — Art History

ARTH 100 Introduction to Art (3) Major approches to understanding the visual arts, and includes analysis of techniques, subject matter and form. Painting, sculpture, architecture, and the graphic arts.

ARTH 200 Art of the Western World I (3) Formerly ARTH 260. Painting, sculpture, and architecture from prehistoric times to the Renaissance.

ARTH 201 Art of the Western World II (3) Formerly ARTH 261. Painting, sculpture, and architecture from the Renaissance to the present.

ARTH 275 Art of Africa (3) Formerly ARTH 284. Appreciation of the art of African cultures. A survey of African culture through painting, sculpture, and architecture from prehistoric times to the present.

ARTH 290 Art of Asia (3) Formerly ARTH 262. South and East Asian art from prehistory through the mid-nineteenth century.

ARTH 355 Twentieth-Century Art (3) A survey of major trends in painting and sculpture, in Europe and America, from approximately 1900 to the present.

ARTH 380 Masterpieces of Painting (3) Formerly ARTH 320. Selected masterworks of painting, revealing the creative process, artistic personality, and cultural context of these works.

ARTH 381 Masterpieces of Sculpture (3) Formerly ARTH 330. Selected masterworks of sculpture, revealing the creative process, artistic personality, and cultural context of these works.

ARTH 382 Masterpieces of Architecture (3) Formerly ARTH 340. Selected masterworks of architecture, revealing the creative process, artistic personality, and cultural context of these works.

ARTH 390 Art of China (3) Formerly ARTH 406. A chronological survey of Chinese painting, sculpture, and the applied arts.

ARTH 395 Art of Japan (3) Formerly ARTH 407. A chronological survey of Japanese painting, sculture, architecture, and the applied arts.

ARTH 400 Egyptian Art and Archaeology (3) Formerly ARTH 404. Sites and monuments of painting, sculpture, architecture, and the minor arts of ancient Egypt from earliest times through the Roman conquest. Emphasis on the pharaonic period.

ARTH 401 Aegean Art and Archaeology (3) Formerly ARTH 404. Sites and monuments of painting, sculpture, architecture, and the minor arts of Crete, the Cycladic islands, and the Greek mainland from the earliest times to the downfall of the Mycenaean.

ARTH 402 Greek Art and Archaeology (3) Sites and monuments of painting, sculpture, architecture, and the minor arts from the Geometric through the Hellenistic period with emphasis on mainland Greece in the Archaic and Classical periods.

ARTH 403 Roman Art and Archaeology (3) Sites and monuments of painting, sculpture, architecture, and the minor arts from the earliest times through the third century A.D. with emphasis on the Italian peninsula from the Etruscan period through that of Imperial Rome.

ARTH 405 Late Roman and Early Christian Art (3) Formerly ARTH 410. Painting, sculpture, architecture, and the minor arts from the early third century through the sixth century A.D.

ARTH 406 Byzantine Art (3) Formerly ARTH 411. Painting, sculpture, architecture, and the minor arts from the seventh century to 1453 A.D.

ARTH 410 Early Medieval Art (3) Formerly ARTH 412. Painting, sculpture and architecture in Western Europe, ca. 500-1150.

ARTH 411 Gothic Art (3) Formerly ARTH 413. Painting, sculpture and architecture in Western Europe, ca. 1150-1400.

ARTH 415 Italian Renaissance Art (3) Formerly ARTH 424. Painting, sculpture and architecture of the fifteenth and sixteenth centuries.

ARTH 418 Special Problems in Italian Renaissance Art (3) Repeatable to 6 credits if content differs. Focus upon Aspects of painting, sculpture, and architecture of Renaissance.

ARTH 420 Fourteenth and Fifteenth-Century Northern European Art (3) Formerly ARTH 416. The art of northern Europe with an emphasis on painting in the Netherlands and France.

ARTH 425 Sixteenth-Century Northern European Painting (3) Formerly ARTH 417. Painting in France, Germany, England, and the Low Countries during the Renaissance and Reformation.

ARTH 426 Renaissance and Baroque Sculpture in Northern Europe (3) Sculpture in France, Germany, England, and the Low Countries from the fourteenth to the seventeenth century.

ARTH 430 Seventeenth-Century European Art (3) Painting, sculpture and architecture of the major southern European centers from 1600 to 1750.

ARTH 435 Seventeenth-Century Art in the Netherlands (3) Formerly ARTH 431. Painting, sculpture and architecture in seventeenth Netherlands.

ARTH 443 Eighteenth-Century European Art (3) From the Rococo to Neo-classicism, major developments in painting, architecture, sculpture, and the landscape garden in eighteenth-century France, England, Italy, Spain, and Germany.

ARTH 444 British Painting, Hogarth to the Pre-Raphaelites (3) A survey of British painting focusing on the establishment of a streng native school in the genres of history painting, narrative subjects, portraiture, sporting art, and landscape.

ARTH 445 Nineteenth-Century European Art to 1850 (3) Formerly ARTH 440. The major trends from Neo-Classicism to Romanticism in painting, sculpture and architecture in Europe.

ARTH 446 Nineteenth-Century European Art from 1850 (3) Formerly ARTH 441. The major trends from Realism through Impressionism to Symbolism and Art Nouveau, in painting, sculpture, and architecture.

ARTH 452 Nineteenth-Century Black American Art (3) Formerly ARTH 473. The visual arts of Black Americans from the Colonial period through the nineteenth century, including crafts and decorative arts.

ARTH 454 Nineteenth and Twentieth Century Sculpture (3) Trends in sculpture from Neo-Classicism to the present.

ARTH 455 Twentieth-Century Art to 1945 (3) Formerly ARTH 450. Painting, sculpture and architecture in Europe and America from the late nineteenth century to the end of World War II.

ARTH 456 Twentieth-Century Art from 1945 (3) Formerly ARTH 451. Painting, sculpture and architecture in Europe and America from 1945 to the present.

ARTH 457 History of Photography (3) Formerly ARTH 452. History of photography as art from its inception in 1839 to the present.

ARTH 460 American Art Since 1876 (3) Formerly ARTH 477. Painting, sculpture, architecture, and the decorative arts in North America after 1876.

ARTH 462 Twentieth-Century Black American Art (3) Formerly ARTH 474. The visual arts of Black Americans in the twentieth century, including crafts and decorative arts.

ARTH 466 Feminist Perspectives on Women in Art (3) Principal focus on European and American women artists of the 19th and 20th centuries, in the context of the new scholarship on women.

ARTH 470 Latin American Art and Archaeology before 1500 (3) Pre-Hispanic painting, sculpture, and architecture, with a focus on the major archaeological monuments of Mexico.

ARTH 471 Latin American Art and Archaeology after 1500 (3) The effect of mingling European visual ideas with pre-Hispanic traditions. The formation of Latin American colonial art. How native American people transformed European ideas and forms.

ARTH 475 Ancient Art of Africa (3) Formerly ARTH 462. Art of the African continent from rock art through the nineteenth century. The cultural meaning of painting, sculpture, architecture, and artifacts from major archeological sites.

ARTH 476 Living Art of Africa (3) Formerly ARTH 463. Art styles among the segmentary, centralised and nomadic people of Africa. The iconography and function of their art and its relationship to their various societies, cults and ceremonies.

ARTH 483 Structure and Analysis of Art (3) Basic concepts of structuralism applied to the analysis of art. Visual examples, including photography, cartoons, painting, and sculpture, emphasize the underlying logic of narrative themes in Western art ranging from the time of Giotto to the present.

ARTH 489 Special Topics in Art History (3) Prerequisite: permission of department. Repeatable to 6 credits.

ARTH 490 Chinese Painting (3) Chinese painting history from the second century B.C. through the twentieth century, covering cultural, stylistic and theoretical aspects.

ARTH 495 Japanese Painting (3) Formerly ARTH 405. Japanese painting from the sixth through the nineteenth century, including Buddhist icon painting, narrative scrolls, and Zen-related ink painting.

ARTH 498 Directed Studies in Art History I (2-3) Prerequisite: permission of department. Repeatable if content differs. Junior standing.

ARTH 499 Directed Studies in Art History II (2-3)

ARTT — Art Studio

ARTT 100 Elements of Design (3) Two hours of lecture and two hours of laboratory per week. Formerly ARTS 100. Principles and elements of design through manipulation and organization of materials in two and three dimensions.

ARTT 110 Elements of Drawing (3) Six hours of laboratory per week. Formerly ARTS 110. An introductory course with a variety of media and related techniques. Problems based on still life, figure and nature.

ARTT 200 Intermediate Design (3) Six hours of laboratory per week. Prerequisites: ARTT 100; and ARTT 110. Formerly ARTS 200. A continuation of Design I with more individually structured problems in terms of form, composition and meaning.

ARTT 208 Design (3) Six hours of laboratory per week. Prerequisites: ARTT 100, and ARTT 110. Repeatable to 6 credits if content differs. Formerly ARTS 208. A continuation of ARTT 100 with more individually structured problems in terms of form, composition and meaning.

ARTT 210 Intermediate Drawing (3) Six hours of laboratory per week. Prerequisites: ARTT 100, and ARTT 110. Formerly ARTS 210. Emphasis on understanding organic form, as related to study from the human figure and to pictorial composition.

ARTT 215 Anatomical Drawing (3) Six hours of laboratory per week. Prerequisite: ARTT 210 or permission of department. Formerly ARTS 215. A drawing course based on the study of anatomical structure emphasizing the human body.

ARTT 277 Architectural Presentation (3) Six hours of laboratory per week. Prerequisites: ARTT 100; and ARTT 110. Formerly ARTS 277. Techniques of wash and watercolor in architectural, interior and landscape architectural rendering.

ARTT 320 Elements of Painting (3) Six hours of laboratory per week. Prerequisite: ARTT 210. Formerly ARTS 320. Basic tools and language of painting. Oil and/or water-based paints.

ARTT 330 Elements of Sculpture: Modeling/Casting (3) Six hours of laboratory per week. Prerequisite: ARTT 210. Formerly ARTS 330. Basic techniques and processes related to the modeling of clay and related material and the casting of these materials in bronze.

ARTT 334 Elements of Sculpture: Construction (3) Six hours of laboratory per week. Prerequisite: ARTT 210. Formerly ARTS 334. Basic techniques and processes related to metals, plastics, fiberglass and wood construction.

ARTT 335 Elements of Sculpture: Carving (3) Six hours of laboratory per week. Prerequisite: ARTT 210. Formerly ARTS 335. Basic techniques and processes related to carving in stone and wood. Direct experience in handling volume, mass, movement and structure.

ARTT 340 Elements of Printmaking: Intaglio (3) Six hours of laboratory per week. Prerequisite: ARTT 210. Formerly ARTS 340. Basic techniques and processes related to etching, aquatint and drypoint.

ARTT 341 Elements of Printmaking: Woodcut and Relief (3) Six hours of laboratory per week. Prerequisite: ARTT 210. Formerly ARTS 341. Basic techniques and processes related to woodcuts, linocuts and other relief media.

ARTT 342 Elements of Printmaking: Collagraphy (3) Six hours of laboratory per week. Prerequisite: ARTT 210. Formerly ARTS 342. Basic techniques and processes related to collagraph printing.

ARTT 343 Elements of Printmaking: Screen Printing (3) Six hours of laboratory per week. Prerequisite: ARTT 210. Formerly ARTS 343. Basic techniques and processes related to serigraph and silkscreen printing.

ARTT 344 Elements of Printmaking: Lithography (3) Six hours of laboratory per week Prerequisite ARTT 210 Formerly ARTS 344 Basic techniques and processes related to drawing, preparing and printing images on lithograph stones or plates

ARTT 404 Experiments in Visual Processes (3) Six hours of laboratory per week Prerequisite ARTT 220 or ARTT 330 or ARTT 340 Formerly ARTS 404 Investigation and execution of process oriented art Group and individual experimental projects

ARTT 418 Drawing (3) Six hours of laboratory per week Prerequisite ARTT 210 Repeatable to 12 credits Formerly ARTS 418 Original compositions from the figure and nature, supplemented by problems of personal and expressive drawing

ARTT 428 Painting (3) Six hours of laboratory per week Prerequisite ARTT 320 Repeatable to 12 credits Formerly ARTS 428 Original compositions based upon nature, figure, still life and expressive painting emphasizing development of personal directions

ARTT 438 Sculpture (3) Six hours of laboratory per week Prerequisites one 300-level sculpture course, and permission of department Repeatable to 12 credits Formerly ARTS 438 Continuation of 300-level elements of sculpture courses with emphasis on developing personal directions in chosen media

ARTT 448 Printmaking (3) Six hours of laboratory per week Prerequisites one 300-level printmaking course, and permission of department Repeatable to 12 credits Formerly ARTS 448 Continuation of 300-level elements of printmaking courses with emphasis on developing personal directions in chosen media

ARTT 468 Advenced Seminar in Studio Art (3) Three hours of laboratory and three hours of discussion/recitation per week Prerequisite permission of department Repeatable to 6 credits Formerly ARTS 468 Relationship of student s work to historical and contemporary context

ARTT 489 Special Problems in Studio Arts (3) Prerequisite permission of department Repeatable to 6 credits Formerly ARTS 489

ARTT 498 Directed Studies in Studio Art (2-3) Prerequisite permission of department. For advanced students Repeatable if content differs Formerly ARTS 498

ASTR — Astronomy

ASTR 100 Introduction to Astronomy (3) An elementary course in descriptive astronomy, especially appropriate for non-science students. Sun, moon, planets, stars and nebulae, galaxies, evolution. Credit for ASTR 100 cannot be obtained after, or simultaneously with, receiving credit for any astronomy course numbered 150 or higher

ASTR 110 Astronomy Laboratory (1) Two hours of laboratory work per week Prerequisite previous or concurrent enrollment in ASTR 100 Exercises include use of photographs of moon, stars, nebulae and galaxies and spectra; experiments demonstrating scientific concepts used in astronomy Daytime and nighttime observations if weather permits Appropriate for non-science majors

ASTR 111 Observational Astronomy Laboratory (1) Corequisite ASTR 100 Two hours of laboratory per week Single evening laboratory projects plus semester-long observing projects involving work both in and out of class Lunar surface features, the night-time sky, changing positions of sun, moon, and planets, stellar spectra observation of stars and nebulae in our galaxy

ASTR 200 Introductory Astronomy and Astrophysics (3) Pre- or corequisite MATH 140 For science, mathematics, computer science and engineering majors only Survey of astronomy, including explorations of the solar system, the kinds of stars and galaxies we observe Audiovisuals; emphasis on aspects that can be treated in some detail within students backgrounds Credit will not be granted for both ASTR 100 and ASTR 200

ASTR 210 Practical Astronomy (2-3) Prerequisites ASTR 181 or 350 and MATH 140 ASTR 100 and 105 may be substituted for ASTR 181 if approved by instructor One lecture and one two-hour laboratory per week 2-3 credits, according to work done Designed primarily for astronomy majors to give the student familiarity with techniques used by astronomers and an understanding of how astronomical data are obtained Students registered for 2 credits will not be required to do all the exercises Coordinate systems, optics, photometry, binary stars, distance determination, Hertzsprung-Russel diagram, solar observations, moon, galactic structure, and galaxies

ASTR 288 Special Projects in Astronomy (1-3) Prerequisite permission of the instructor Independent study, short research projects, tutorial reading, and assisting with faculty research and teaching under special supervision Repeatable to a maximum of six credits

ASTR 300 Stars and Steller Systems (3) Prerequisite ASTR 100 and completion of University Studies requirement in the natural sciences or consent of instructor Designed primarily for non-physical-science majors Study of stars: types, properties, evolution, and distribution in space, supernovae, pulsars, and black holes

ASTR 315 Navigation (3) Prerequisite plane trigonometry Theory and practice of navigation without landmarks with emphasis on celestial navigation and some discussion of electronic navigation Spherical trigonometry as necessary Extensive practical work at times to be arranged

ASTR 330 Solar-System Astronomy (3) Prerequisite ASTR 100 and completion of University Studies requirement in the natural science, or consent of instructor Designed primarily for non-physical-science majors The structure of planets and of their atmospheres, the nature of comets asteroids, and satellites Comparison of various theories for the origin of the solar system Emphasis on a description of recent data and interpretation

ASTR 340 Galaxies and the Universe (3) Prerequisite ASTR 100 and completion of University Studies requirement in the natural science or consent of instructor Designed primarily for non-physical science majors A study of galaxies including our own galaxy radio galaxies, and quasars Measurement of distances, recession of galaxies, the microwave background and its relation to cosmology

ASTR 350 Astronomy and Astrophysics (4) Prerequisites PHYS 272 or 262 or 142 or permission of department, ASTR 200 or specific reading assignments during course; corequisite PHYS 293 or 263 Topics in astronomy with emphasis on physical concepts Stellar spectra, stellar evolution and collapsed objects, ionized nebulae, molecular clouds and star formation, stellar dynamics, cosmology

ASTR 380 Life in the Universe (3) Prerequisite ASTR 100 and completion of University Studies requirement in the natural science, or consent of instructor Designed primarily for non-physical science majors Study of the astronomical perspective on the conditions for the origin and existence of life Communication with extraterrestrial life

ASTR 398 Special Topics in Astronomy (3) Prerequisite junior standing or consent of instructor This course is designed primarily for students not majoring in astronomy and is suitable for nonscience students It will concentrate study in some limited field in astronomy which will vary from semester to semester Possible subjects for study are the solar system, extragalactic astronomy and cosmology, the inconstant universe Repeatable to a maximum of six credits

ASTR 399 Honors Seminar (1-16) Credit according to work done Enrollment is limited to students admitted to the honors program in astronomy

ASTR 400 Stellar Astrophysics (3) Prerequisite ASTR 350 Corequisite PHYS 420 or 421 Radiation processes in stars and interstellar space, stellar atmospheres, stellar structure and evolution

ASTR 410 Observational Astronomy I (3) Prerequisites PHYS 294 or 263, and 3 credits in astronomy An introduction to current methods of obtaining astronomical information Emphasis on optical and radio techniques, with brief coverage of X-ray, ultraviolet, and infrared techniques Emphasis on understanding how instruments affect the data

ASTR 411 Observational Astronomy II (3) Prerequisite ASTR 410 Laboratory work with photographic and photoelectric techniques and with components of radio telescopes Two longer individual projects involving observations with various instruments Often requires all-night observing sessions

ASTR 420 Introduction to Galactic Research (3) Prerequisite PHYS 272 and ASTR 350 or equivalent, or permission of department Methods of galactic research stellar motions, clusters of stars, evolution of the galaxy study of our own and nearby galaxies

ASTR 430 The Solar System (3) Prerequisite MATH 246 and either PHYS 263 or PHYS 273, or permission of department The structure of planetary atmospheres, radiative transfer in planetary atmospheres remote sensing of planetary surfaces, interior structure of planets Structure of comets Brief discussions of asteroids, satellite systems, and solar system evolution Intended for students majoring in any of the physical sciences

ASTR 440 Introduction to Extra-Galactic Astronomy (3) Prerequisites PHYS 272 and ASTR 350 or equivalent or permission of department Properties of normal and peculiar galaxies, including radio galaxies and quasars expansion of the universe and cosmology

ASTR 450 Celestial Mechanics (3) Three lectures a week Prerequisite PHYS 410 or consent of instructor Celestial mechanics orbit theory equations of motion

ASTR 498 Special Problems in Astronomy (1-6) Prerequisite major in physics or astronomy and/or consent of advisor Research or special study Credit according to work done

BCHM — Biochemistry

BCHM 261 Elements of Biochemistry (3) Prerequisite CHEM 104 or 233 or 235 For undergraduate students who desire a one-semester biochemistry course rather than a two-semester sequence Basic chemistry and metabolism of most molecules of biological importance Not open to students with credit in BCHM 461

BCHM 361 Origins of Biochemistry (3) Prerequisite any distributive studies course in chemistry or any of the biological sciences The development of our understanding of life processes Emphasis on a consideration of ideas and findings that have led to diseases, hormonal mechanisms, photosynthesis and genetic engineering Intended for non-science majors

BCHM 461 Biochemistry I (3) Prerequisites CHEM 243 or 245, or permission of instructor A comprehensive introduction to general biochemistry The chemistry and metabolism of carbohydrates, lipids, nucleic acids, and proteins

BCHM 462 Biochemistry II (3) Prerequisite BCHM 461 A continuation of BCHM 461

BCHM 463 Biochemistry Laboratory I (2) Two three-hour laboratory periods per week Pre or corerequisite BCHM 461

BCHM 464 Biochemistry Laboratory II (2) Two three-hour laboratory periods per week Prerequisite CHEM 483 or BCHM 463, pre or corequisite BCHM 462

BIOL — Biology

BIOL 101 Concepts of Biology (3) An introductory lecture course for the non-science major emphasizing the fundamental processes and interdependence of living organisms and the biological implications associated with human influence in the biological world. This course will not count toward graduation requirements for any student in the College of Life Sciences or the College of Agriculture

BIOL 102 Laboratory in Biology (1) One three-hour laboratory per week Pre- or corequisite BIOL 101 A course designed for non-science students to illustrate the concepts underlying the organization and interrelationships of living organisms This course will not count toward graduation requirements for any student in the College of Life Sciences or the College of Agriculture

BIOL 105 Principles of Biology I (4) Three hours of lecture and three hours of laboratory per week Basic principles of biology with special emphasis on cellular and molecular biology For science majors Credit will be given for only one of BIOL 101, BOTN 101 ZOOL 101 or BIOL 105

BIOL 106 Principles of Biology II (4) Three hours of lecture and three hours of laboratory per week Basic principles of biology with special emphasis on organismic, ecological and evolutionary biology For science majors

BIOL 124 Cosmic Evolution (3) Three lectures per week Prerequisites High school chemistry and biology Especially appropriate for non-science students The current scientific thinking on the sequence of events from the origin of the universe to the appearance of man Emphasis on chemical and biological evolution

BIOL 398 Honors Research Problems in Biology (1-3) Prerequisite Participation in the General Honors Program and/or the General Biological Sciences Honors Program Research in biology under the direction and close supervision of a member of the faculty May be repeated to a maximum of six credits

BIOL 399 Honors Seminar in Biology (1) Prerequisite Participation in the General Honors Program and/or the General Biological Sciences Honors Program, and previous or concurrent enrollment in BIOL 398 Discussion and presentation of special topics current literature problems and progress in all areas of biological research Repeatable to a maximum of two semester hours credit

BIOM — Biometrics

BIOM 301 Introduction to Biometrics (3) Two lectures and one discussion period per week Prerequisite Completion of division math requirement Descriptive statistics introduction to probability sampling, confidence interval estimation hypothesis testing simple regression and correlation Emphasis on simple applications of statistical techniques and interpretation of statistical results

BIOM 401 Biostatistics I (4) Three lectures and one discussion per week Prerequisite MATH 115 BIOM 301, or permission of the instructor Descriptive statistics probability models useful in biology expectations hypothesis testing sign test goodness of fit tests central limit theorem point and interval estimates analysis of variance, regression correlation sampling rank tests Emphasis on the uses and the limitations of these methods in biology

BIOM 405 Computer Applications in Biometrics (1) One, 2-hour laboratory per week Prerequisite BIOM 401 or equivalent An introduction to computer usage in statistical analyses Topics include file manipulation, formating data transformations, descriptive statistics, graphical displays of data, and several introductory inferential statistical procedures

BIOM 420 Sampling Techniques in Biometrics (3) Prerequisite BIOM 401 or permission of the instructor Methods of sampling probability, random, cluster, stratified, inverse, ratio estimates, methods in field surveys mark recapture studies, line transect sampling surveys, design of collection forms, sample size calculations Emphasis on the use of these methods in biological research

BMGT — Business and Management

BMGT 110 Introduction to Business and Management (3) A survey of the field of business, including its environment, organization, overall and functional management, and current issues and developments

BMGT 220 Principles of Accounting I (3) Sophomore standing Study of the basic principles of accounting for business enterprises

BMGT 221 Principles of Accounting II (3) Prerequisite BMGT 220 Continuation of BMGT 220

BMGT 230 Business Statistics (3) Prerequisite MATH 220 Not open to students who have completed BMGT 231, ENEE 324, or STAT 400 Credit will be granted for only one of the following: AREC 484, BIOM 301, BMGT 230, CNEC 400, ECON 421, EDMS 451, GEOG 305, GVPT 422, PSYC 200, SOCY 201, URBS 350, or TEXT 400. Introductory course in probabilistic and statistical concepts including descriptive statistics, set-theoretic development of probability, the properties of discrete and continuous random variables, sampling theory, estimation, hypothesis testing, regression, decision theory and the application of these concepts to problem solving in business and management This course does not meet requirements for management science and statistics majors

BMGT 231 Statistical Models For Business (3) Prerequisite MATH 141 or permission of department For management science and statistics majors Credit will be granted for only one of the following: BMGT 231, ENEE 324, or STAT 400 An introductory course in statistical concepts including probability from a naive set theory approach, random variables and their properties, and the probability distributions of selected discrete and continuous random variables The concepts of sampling, sampling distributions, and the application of these concepts to estimation and hypothesis testing are included as are brief surveys of the regression and anova models.

BMGT 301 Introduction to Data Processing (3) Junior standing The fundamentals of business data processing Organizational, environmental and managerial aspects of computer systems Heavy emphasis on COBOL language Limited coverage of other business computing languages including the report generator (RPG) language. Several programming projects assigned

BMGT 302 Information Systems Implementation Techniques (3) Prerequisite: BMGT 301 Advanced concepts and tools necessary for the construction of computer based information systems. Operating systems, data and storage structures, file processing and advanced features of the COBOL language Techniques related to the overall development of software projects including project management, software design, engineering and software documentation Several programming projects assigned

BMGT 310 Intermediate Accounting I (3) Prerequisite BMGT 221 Comprehensive analysis of financial accounting topics related to financial statement preparation and external reporting

BMGT 311 Intermediate Accounting II (3) Prerequisite BMGT 310 Continuation of BMGT 310

BMGT 321 Cost Accounting (3) Prerequisite BMGT 221 A study of the basic concepts of product costing and cost analysis for management planning and control. Emphasis is placed on the role of the accountant in organizational management, analysis of cost behavior, standard cost, budgeting responsibility accounting and relevant costs for decision making

BMGT 323 Income Tax Accounting (3) Prerequisite BMGT 221. Introduction to federal income taxation of individuals Examination of tax laws by use of illustrative examples and problems

BMGT 326 Accounting Systems (3) Prerequisites BMGT 301, and BMGT 321. A study of the control aspects of accounting systems Topics include standard setting, administrative, operational, and security controls, cost effectiveness of systems; audit implications of a computer-based information environment

BMGT 332 Operations Research For Menegement Decisions (3) Prerequisite BMGT 230 Surveys the philosophy, techniques, and applications of operations research to managerial decision making The course is designed primarily for students not majoring in management science or statistics Techniques covered include linear programming, transportation and assignment models, Markov processes, inventory and queueing models Emphasis is placed on formulating and solving decision problems in the functional areas of management

BMGT 340 Business Finance (3) Prerequisites BMGT 221, and BMGT 230, or BMGT 231 The principles and practices involved in the organization, financing, and rehabilitation of business enterprises, the various types of securities and their use in raising funds, apportioning income, risk, and control; intercorporate relations, and new developments Emphasis on solution of problems of financial policy faced by management

BMGT 343 Investments (3) Prerequisite BMGT 340. An introduction to financial investments Topics include securities and securities markets, investment risks, returns, and constraints, portfolio policies, and institutional investment policies

BMGT 345 Property and Liability Insurance (3) Prerequisites BMGT 221, and BMGT 230 Analysis of the major areas of property and casualty covers, including fire, indirect loss, crime, automobile, ocean and inland marine, and liability Investigation of substandard, residual, and reinsurance markets and discussion of current issues

BMGT 346 Risk Management (3) Prerequisites BMGT 221, and BMGT 230. Recognition and evaluation of the pure risks facing organizations Guides for risk management decisions concerning the retention, control, and transfer (including insurance) of risk

BMGT 347 Life Insurance (3) Prerequisite: BMGT 221 Life and health insurance products and principles in business financial planning Pension planning including deferred compensation and profit sharing plans, use of trust in business and individual estate planning, comprehensive analysis of the impact of income, estate, and gift taxation on life insurance programming and estate planning

BMGT 350 Marketing Principles and Organization (3) Prerequisite ECON 203, or ECON 205. An introductory course in the field of marketing Its purpose is to give a general understanding and appreciation of the forces operating, institutions employed, and methods followed in marketing agricultural products, natural products, services and manufactured goods.

BMGT 353 Retail Management (3) Prerequisites: BMGT 220; and BMGT 350 Retail store organization, location, layout and store policy; pricing policies, price lines, brands, credit policies, records as a guide to buying, purchasing methods; supervision of selling, training and supervision of retail sales force, and administrative problems

BMGT 354 Promotion Management (3) Prerequisite: BMGT 350 The use of advertising, personal selling, sales promotions, and other methods in marketing programs. Case studies in the use and coordination of demand stimulation methods, analysis and planning Research, testing and statistical control of promotional activities

BMGT 360 Personnel Management (3) Junior standing The basic course in personnel management includes manpower planning, recruitment, selection, development, compensation, and appraisal of employees Explores the impact of scientific management and unionism on these functions.

BMGT 362 Labor Relations (3) Junior standing A study of the development and methods of organized groups in industry with reference to the settlement of labor disputes. An economic and legal analysis of labor union and employer association activities, arbitration, mediation, and conciliation; collective bargaining, trade agreements, strikes, boycotts, lockouts, company unions, employee representation, and injunctions

BMGT 364 Management and Organization Theory (3) Junior standing The development of management and organization theory, nature of the management process and function and its future development The role of the manager as an organizer and director, the communication process, goals and responsibilities

BMGT 370 Principles of Transportation (3) Prerequisite ECON 203, or ECON 205. A general course covering the five fields of transportation, their development, service, and regulation

BMGT 372 Traffic and Physical Distribution Management (3) Junior standing Examines the management aspects of the business firm in moving their raw materials and finished goods through traffic, warehousing, industrial packaging, materials handling, and inventory A systematic examination of the trade-off possibilities and management alternatives to minimize cost of product flow and maximizing customer service is provided

BMGT 380 Business Law I (3) Legal aspects of business relationships Examination of torts and business crimes, contracts and agency The law of personal property and bailment relationships Survey of public policy issues

BMGT 381 Business Law II (3) Prerequisite BMGT 380 or permission of department The Uniform Commercial Code including sales, commercial paper, secured transactions, bulk sales and documents of title The law of partnerships and corporations Reorganization and liquidation under the bankruptcy laws The law of real property landlord and tenant relationships and decedents' estates

BMGT 385 Production Management (3) Junior standing Studies the operation of a manufacturing enterprise, concentrating on the economies of production Introduces analytical method so that the broad problem areas of system design, operation and control can be based upon the analytical method

BMGT 392 Introduction to International Business Management (3) Prerequisite ECON 203, or ECON 205 A study of the domestic and foreign environmental factors affecting the international operations of U S business firms The course also covers the administrative aspects of international marketing, finance and management

BMGT 393 Real Estate Principles (3) Prerequisite ECON 203, or ECON 205 The nature and uses of real estate, real estate as a business, basic principles, construction problems and home ownership, city planning, and public control and ownership of real estate

BMGT 398 Individual Study in Business and Management (1-3) Prerequisite permission of department Repeatable to 6 credits

BMGT 402 Database and Data Communication Systems (3) Prerequisite BMGT 302 Introduction to database and data communications systems Modeling and database construction using the three data models network, relational and hierarchical Implementation project using DMS 1100 database system Data communications protocols and communications support software Analysis of distributed systems and computer networks Emphasis on new technologies

BMGT 403 Systems Analysis (3) Prerequisite: BMGT 402 Techniques and tools applicable to the analysis and design of computer based information systems System life cycle, requirements analysis, logical design of data bases, performance evaluation Emphasis on case studies Project required that involves the design, analysis and implementation of an information system

BMGT 404 Seminar in Decision Support Systems (3) Prerequisite: BMGT 301. Design of computer systems to solve business problems and to support decision making Human and organizational factors are considered Emphasis on case studies

BMGT 410 Fund Accounting (3) Prerequisite BMGT 310. An introduction to the fund-based theory and practice of accounting as applied to governmental entities and not-for-profit associations

BMGT 417 Advanced Tax Accounting (3) Prerequisites BMGT 311, and BMGT 323 Federal taxation of corporations, partnerships, fiduciaries, and gratuitous transfers Tools and techniques of tax research for compliance and planning

BMGT 420 Undergraduate Accounting Seminar (3) Prerequisite: senior standing as an accounting major or permission of department Enrollment limited to upper one-third of senior class Seminar coverage of outstanding current non-text literature, current problems and case studies in accounting

BMGT 421 Undergraduate Accounting Seminar (3) Prerequisite: senior standing as an accounting major or permission of department Enrollment limited to upper one-third of senior class Seminar coverage of outstanding current non-text literature, current problems and case studies in accounting

BMGT 422 Auditing Theory and Practice (3) Prerequisite BMGT 311 A study of the independent accountant's attest function, generally accepted auditing standards, compliance and substantive tests, and report forms and opinions.

BMGT 424 Advanced Accounting (3) Prerequisite BMGT 311. Advanced accounting theory applied to specialized topics and current problems Emphasis on consolidated statements and partnership accounting

BMGT 426 Advanced Cost Accounting (3) Prerequisite: BMGT 321 Advanced cost accounting with emphasis on managerial aspects of internal record-keeping and control systems

BMGT 427 Advanced Auditing Theory and Practice (3) Prerequisite BMGT 422 An examination and in-depth study of special auditing topics such as statistical sampling, professional ethics, EDP auditing, legal liability, and SEC accounting

BMGT 430 Linear Statistical Models in Business (3) Prerequisite: BMGT 230 or BMGT 231 or permission of department. Model building involving an intensive study of the general linear stochastic model and the applications of this model to business problems. The model is derived in matrix form and this form is used to analyze both the regression and ANOVA formulations of the general linear model.

BMGT 431 Design of Statistical Experiments in Business (3) Prerequisite: BMGT 230 or BMGT 231. Surveys ANOVA models, basic and advanced experimental design concepts. Non-parametric tests and correlations are emphasized. Applications of these techniques to business problems in primarily the marketing and behavioral sciences are stressed.

BMGT 432 Sample Survey Design For Business and Economics (3) Prerequisite: BMGT 230; or BMGT 231. Design of probability samples. Simple random sampling, stratified random sampling, systematic sampling, and cluster sampling designs are developed and compared for efficiency under varying assumptions about the population sampled. Advanced designs such as multistage cluster sampling and replicated sampling are surveyed. Implementing these techniques in estimating parameters of business models is stressed.

BMGT 433 Statistical Decision Theory in Business (3) Prerequisite: BMGT 231, or permission of department. Bayesian approach to the use of sample information in decision-making. Concepts of loss, risk, decision criteria, expected returns, and expected utility are examined. Application of these concepts to decision-making in the firm in various contexts are considered.

BMGT 434 Introduction to Optimization Theory (3) Prerequisite: MATH 220; or permission of department. Primarily for students majoring in management science and statistics. Linear programming, postoptimality analysis, network algorithms, dynamic programming, nonlinear programming and single variable minimization.

BMGT 435 Introduction to Applied Probability Models (3) Prerequisite: BMGT 231 or permission of department. Statistical models in management. Review of probability theory. Monte Carlo methods, discrete event simulation, Markov chains, queueing analysis, other topics depending upon time. Guass, a higher-level computer language, will be introduced in the class and the students will carry out various exercises using this language.

BMGT 436 Applications of Mathematical Programming in Management Science (3) Prerequisite: BMGT 434; or permission of department. Theory and applications of linear, integer, and nonlinear programming models to management decisions. Topics covered include the basic theorems of linear programming, the matrix formulation of the simplex, and dual simplex algorithms, decomposition, cutting plane, branch and bound, and implicit enumeration algorithms; gradient based algorithms, and quadratic programming. Special emphasis is placed upon model formulation and solution using prepared computer algorithms.

BMGT 438 Topics in Statistical Analysis For Business Management (3) Prerequisites: [BMGT 430; and MATH 240]; or permission of department. Repeatable to 6 credits if content differs. Selected topics in statistical analysis which are relevant to management for students with knowledge of basic statistical methods. Topics include evolutionary operation and response surface analysis, forecasting techniques, pathologies of the linear model and their remedies, multivariate statistical models, and non-parametric models.

BMGT 440 Financial Management (3) Prerequisite: BMGT 340. Analysis and discussion of cases and readings relating to financial decisions of the firm. The application of finance concepts to the solution of financial problems is emphasized.

BMGT 443 Security Analysis and Valuation (3) Prerequisite: BMGT 343. Study and application of the concepts, methods, models, and empirical findings to the analysis, valuation, and selection of securities, especially common stock.

BMGT 444 Futures Contracts and Options (3) Prerequisite: BMGT 343. The institutional features and economic rationale underlying markets in futures and options. Hedging, speculation, structure of futures prices, interest rate futures, efficiency in futures markets, and stock and commodity options.

BMGT 445 Commercial Bank Management (3) Prerequisites: BMGT 340; and ECON 430. Analysis and discussion of cases and readings in commercial bank management. The loan function is emphasized; also the management of liquidity reserves, investments for income, and source of funds. Bank objectives, functions, policies, organization, structure, services, and regulation are considered.

BMGT 451 Consumer Analysis (3) Prerequisite: BMGT 350. Recommended: PSYC 100, and PSYC 221. 60 semester hours. Junior standing. Not open to students who have completed CNEC 437. Credit will be granted for only one of the following: BMGT 451 or CNEC 437. American consumers in the marketing system. Underlying consumer behavior such as economic, social, psychological and cultural factors. Analysis of consumers in marketing situations - as a buyer and user of products and services - and in relation to the various individual social and marketing factors affecting their behavior. The influence of marketing communications is also considered.

BMGT 452 Marketing Research Methods (3) Prerequisites: BMGT 230, and BMGT 451. Formerly BMGT 450. Develops skills in the use of scientific methods in the acquisition, analysis and interpretation of marketing data. It covers the specialized fields of marketing research, the planning of survey projects, sample design, tabulation procedure and report preparation.

BMGT 453 Industrial Marketing (3) Prerequisites: BMGT 350 plus one other marketing course. The industrial and business sector of the marketing system is considered rather than the household or ultimate consumer sector. Industrial products range from raw materials and supplies to the major equipment in a plant, business office, or institution. Topics include product planning and introduction, market analysis and forecasting, channels, pricing, field sales force management, advertising, marketing cost analysis, and government relations. Particular attention is given to industrial, business and institutional buying policies and practice and to the analysis of buyer behavior.

BMGT 454 International Marketing (3) Prerequisites: BMGT 350 plus one other marketing course. Marketing functions from the international executive's viewpoint, including coverage of international marketing policies relating to product adaptation, data collection and analysis, channels of distribution, pricing, communications, and cost analysis. Consideration is given to the cultural, legal, financial, and organizational aspects of international marketing.

BMGT 455 Sales Management (3) Prerequisite: BMGT 350. The role of the sales manager, both at headquarters and in the field, in the management of people, resources and marketing functions. An analysis of the problems involved in sales organization, forecasting, planning, communicating, evaluating and controlling. The application of quantitative techniques and pertinent behavioral science concepts in the management of the sales effort and sales force.

BMGT 456 Advertising (3) Prerequisite: BMGT 350. 60 semester hours. Junior standing. The role of advertising in the American economy, the impact of advertising on our economic and social life, the methods and techniques currently applied by advertising practitioners, the role of the newspaper, magazine, and other media in the development of an advertising campaign, modern research methods to improve the effectiveness of advertising and the organization of the advertising business.

BMGT 457 Marketing Policies and Strategies (3) Prerequisite: BMGT 452. Integrative decision making in marketing. Emphasis on consumer and market analysis and the appropriate decision models. Case studies are included.

BMGT 460 Personnel Management: Analysis and Problems (3) Prerequisite: BMGT 360. Recommended: BMGT 230. Research findings, special readings, case analysis, simulation, and field investigations are used to develop a better understanding of personnel problems, alternative solutions and their practical ramifications.

BMGT 462 Labor Legislation (3) Case method analysis of the modern law of industrial relations. Cases include the decisions of administrative agencies, courts and arbitration tribunals.

BMGT 463 Public Sector Labor Relations (3) Prerequisite: BMGT 362 or permission of department. Development and structure of labor relations in public sector employment, federal, state and local government responses to unionization and collective bargaining.

BMGT 464 Organizational Behavior (3) Prerequisite: BMGT 364. An examination of research and theory concerning the forces which contribute to the behavior of organizational members. Topics covered include: work group behavior, supervisory behavior, intergroup relations, employee goals and attitudes, communication problems, organizational change, and organizational goals and design.

BMGT 467 Undergraduate Seminar in Personnel Management (3) Prerequisite: permission of department. This course is open only to the top one-third of undergraduate majors in personnel and labor relations and is offered during the fall semester of each year. Highlights major developments. Guest lecturers make periodic presentations.

BMGT 470 Carrier Management (3) Prerequisites: BMGT 370, and BMGT 372. Integration of the functions available to managers in transportation companies including planning, directing and implementation of policies. Emphasis on the changing environment in which managers of transportation carriers function.

BMGT 473 Advanced Transportation Problems (3) Prerequisite: BMGT 370. A critical examination of current government transportation policy and proposed solutions. Urban and intercity managerial transport problems are also considered.

BMGT 474 Urban Transport and Urban Development (3) Prerequisite: ECON 203, or ECON 205. An analysis of the role of urban transportation in present and future urban development. The interaction of transport pricing and service, urban planning, institutional restraints and public land uses is studied.

BMGT 475 Advanced Logistics Management (3) Prerequisites: BMGT 370, and BMGT 372. Application of the concepts of BMGT 372 to problem solving and special projects in logistics management. Case analysis is stressed.

BMGT 476 Applied Computer Models in Transportation and Logistics (3) Prerequisites: BMGT 370, and BMGT 372. Introduction to the expanding base of computer software in the transportation and logistics fields. Applications of particular relevance to carrier and shipper issues in a deregulated environment.

BMGT 477 International Transportation and Logistics (3) Prerequisites: BMGT 370, and BMGT 372. Analysis of the structure, service, pricing and competitive relationship of U.S. international carriers and transport intermediaries. Examination of the role of foreign competitors, managerial and economic factors and politically imposed restrictions. Business and public policy implications of transportation in developing countries and their interface with international trade and development.

BMGT 480 Legal Environment of Business (3) Junior standing. Principal ideas in law stressing those relevant for the modern business executive with focus on legal reasoning as it has evolved in this country. Leading antitrust cases illustrating the reasoning process as well as the interplay of business, philosophy and the various conceptions of the nature of law which give direction to the process. Examination of contemporary legal problems and proposed solutions, especially those most likely to affect the business community.

BMGT 481 Public Utilities (3) Prerequisite: ECON 203; or ECON 205. Using the regulated industries as specific examples, attention is focused on broad and general problems in such diverse fields as constitutional law, administrative law, public administration, government control of business, advanced economic theory, accounting, valuation and depreciation, taxation, finance, engineering and management.

BMGT 482 Business and Government (3) Prerequisite: ECON 203, or ECON 205. A study of the role of government in modern economic life. Social control of business as a remedy for the abuses of business enterprise arising from the decline of competition. Criteria of limitations on government regulation of private enterprise.

BMGT 485 Advanced Production Management (3) Prerequisite: BMGT 385. A study of typical problems encountered by the factory manager. The objective is to develop the ability to analyze and solve problems in management control of production and in the formulation of production policies. Among the topics covered are plant location, production planning and control, methods analysis and time study.

BMGT 490 Urban Land Management (3) Covers the managerial and decision making aspects of urban land and property. Included are such subjects as land use and valuation matters.

BMGT 493 Honors Study (3) Prerequisite: permission of department. First semester of the senior year. The course is designed for honors students who have elected to conduct intensive study (independent or group). The student will work under the direct guidance of a faculty advisor and the Director of Undergraduate Studies. They shall determine that the area of study is of a scope and intensity deserving of a candidate's attention. Formal written and or oral reports on the study may be required by the faculty advisor.

BMGT 494 Honors Study (3) Prerequisite: BMGT 493 and continued candidacy for honors in Business and Management. Second semester of the senior year. The student shall continue and complete the research initiated in BMGT 493; additional reports may be required at the discretion of the faculty advisor and Director of Undergraduate Studies.

BMGT 495 Business Policies (3) Prerequisites: BMGT 340, and BMGT 350; and BMGT 364. Senior standing. A case study course where students apply what they have learned of general management principles and their specialized functional applications to the overall management function in the enterprise.

BMGT 496 Business and Society (3) Prerequisite: One course in BMGT, or permission of department. Normative role of business in society; consideration of the sometimes conflicting interests and claims on the firm and its objectives.

BMGT 498 Special Topics in Business and Management (3) Prerequisite: permission of department. Repeatable to 6 credits if content differs. Special topics in business and management designed to meet the changing needs and interests of students and faculty.

BOTN — Botany

BOTN 100 General Botany For Non-Science Students (4) Two lectures and two laboratory periods a week. A basic course in plant biology specifically designed to meet the educational needs of the general or non-science student. Emphasis is placed on an ecological approach to studying fundamental concepts and processes of plants, and stressing the importance of plant life to human welfare. Credit not allowed for both BOTN 100 and 101.

BOTN 102 Honors General Botany (4) A basic course in plant biology designed for honors students and open to others with permission of the instructor. Fundamental biological principles and mechanisms governing plant life.

BOTN 103 Human Aspects of Plant Biology (3) An introduction to botany for non-science students: nature of botany, form and process in plants, plants in the environment, plants used by humans, plants, history and culture, exploring for plants.

BOTN 202 Plant Kingdom (4) Two lectures and two laboratory periods a week. Prerequisite: BOTN 101 or permission of instructor. A brief evolutionary study of algae, fungi, liverworts, mosses, ferns and their relatives, and the seed plants, emphasizing their structure, reproduction, habitats, and economic importance.

BOTN 211 Ecology and Mankind (3) Basic ecological principles as they relate to the ecological dilemmas of overpopulation, pollution, increasing consumption of natural resources, and deteriorating land use ethic facing mankind today. College credit in biological or physical sciences not prerequisite.

BOTN 212 Plant Taxonomy (4) Two lectures and two laboratory periods per week. Prerequisite: BOTN 101 or permission of instructor. An introductory study of plant identification, naming, and classification. Laboratory emphasis on the collection and identification of local vascular plants.

BOTN 221 Introductory Plant Pathology (4) Two lectures and two laboratory periods per week. Prerequisite: BOTN 101 or permission of instructor. An introductory study of the causal agents, nature, and management of plant diseases.

BOTN 315 Economic Botany (3) Two lectures and one laboratory period per week. Prerequisite: BOTN 100 or 101, or permission of the instructor. BOTN 212 is strongly recommended. A survey of the origins and types of plants and plant products utilized by human societies and their historic and economic significance. Emphasis on the origins of specific plants domesticated or used in different civilization centers and cultures.

BOTN 378 Tutorial Readings in Botany (2-3) Open only to honors students in botany. A review of the original literature dealing with a specific research problem in preparation for research to be accomplished in BOTN 379.

BOTN 379 Honors Research Problems in Botany (1-3) Prerequisite: BOTN 378 and twenty credits in botany courses. Open only to honors students in botany. Research in botany under the direction and close supervision of a member of the faculty. May be repeated to a maximum of six credits.

BOTN 398 Seminar (1) Prerequisite: major in botany, with permission of instructor, major in biological science. Discussion and reading on special topics, current literature, or problems and progress in all phases of botany. Repeatable to a maximum of two semester hours credit.

BOTN 399 Research Problems in Botany (1-3) Prerequisites: twenty hours of botany courses and permission of the instructor. Research and/or integrated reading in botany under the direction and close supervision of a member of the faculty. May be repeated for a maximum of 6 credits.

BOTN 401 Origins of Modern Botany (1) Prerequisite: 20 credit hours in biological sciences including BOTN 101 or permission of instructor. History of botany as a science, from ancient Greece through the 18th century, emphasis on botany as an intellectual and cultural pursuit.

BOTN 403 Medicinal and Poisonous Plants (2) Prerequisites: BOTN 101 and CHEM 104. A study of plants important to man that have medicinal or poisonous properties. Emphasis on plant source, plant description, the active agent and its beneficial or detrimental physiological action and effects.

BOTN 405 Advanced Plant Taxonomy (3) Two lectures and one laboratory period per week. Prerequisites: BOTN 202 and BOTN 212, or equivalents. A review of the history and principles of plant taxonomy with emphasis on monographic and floristic research. A detailed laboratory review of the families of flowering plants.

BOTN 407 Teaching Methods in Botany (2) Four two-hour laboratory demonstration periods per week for eight weeks. Prerequisite: BOTN 101 or permission of instructor. A study of the biological principles of common plants, and demonstrations, projects, and visual aids suitable for teaching in primary and secondary schools.

BOTN 410 Grass Systematics (3) Two lectures and one two-hour laboratory period per week. Prerequisite: BOTN 212 or AGRO 405 or permission of the instructor. A study of the grass family including the structure, classification, identification, and economic importance of members of this diverse family. Grass identification.

BOTN 411 Evolutionary Biology of Plants (3) Prerequisite: BOTN 202 or equivalent. Evolution of basic plant biological systems, major structural adaptations of plant organs, and origins of vascular plant groups. The pace, patterns and mechanisms of evolution, discussed within a genetic, systematic and paleontological framework.

BOTN 412 Vascular Plant Morphology (4) Two lectures and two two-hour laboratory periods per week. Prerequisites: BOTN 202 or 416, or equivalents. Comparative studies of structural adaptations, reproductive biology, and phylogenetic relationships of bryophytes, fern "allies," ferns, gymnosperms and angiosperms.

BOTN 413 Plant Geography (2) Prerequisite: BOTN 101 or permission of instructor. A study of plant distribution throughout the world and the factors generally associated with such distribution.

BOTN 414 Plant Genetics (3) Prerequisite: BOTN 101 or permission of instructor. The basic principles of plant genetics are presented, the mechanics of transmission of the hereditary factors in relation to the life cycle of seed plants, the genetics of specialized organs and tissues, spontaneous and induced mutations of basic and economic significance, gene action, genetic maps, the fundamentals of polyploidy, and genetics in relation to methods of plant breeding are the topics considered.

BOTN 416 Plant Structure (4) Two lectures and two 2-hour laboratory periods per week. Prerequisite: BOTN 101. A survey of the basic structural features of vascular plants, including subcellular organelles, cells, tissues, and organs. Emphasis on structural phenomena as they relate to physiological processes of agricultural importance.

BOTN 417 Field Botany and Taxonomy (2) Four two-hour laboratory periods a week for eight weeks. Prerequisite: BOTN 101 or permission of instructor. The identification of trees, shrubs, and herbs, emphasizing the native plants of Maryland. Manuals, keys, and other techniques will be used. Numerous short field trips will be taken. Each student will make an individual collection.

BOTN 420 Plant Cell Biology (3) Prerequisites: organic chemistry and two years of botany, or permission of the instructor. A study of eucaryotic cell organization, integrating structure with function and concentrating on subcellular organelles and the mechanisms of physiological regulation at the cellular level.

BOTN 421 Principles of Plant Disease Management (3) Two lectures and one two-hour laboratory period per week. Prerequisite: BOTN 221, or equivalent. A logical, holistic approach to understanding and planning disease control using multiple strategies and tactics to prevent crop losses from exceeding economic damage levels.

BOTN 423 Diseases of Agronomic Crops and Turf (2) Prerequisite: BOTN 221. Practical experience in recognition and control of diseases affecting field crops such as corn, soybeans, small grains, tobacco and turf. Symptoms of economic importance and control measures for the important diseases of these crops.

BOTN 426 Mycology (4) Two lectures and two three-hour laboratory periods per week. Prerequisite: BOTANY 101 or permission of the instructor. An introductory course in the biology, morphology and taxonomy of the fungi.

BOTN 427 Field Plant Pathology (1) Summer session: lecture and laboratory to be arranged. Prerequisite: BOTN 221, or equivalent. The techniques of pesticide evaluation and the identification and control of diseases of Maryland crops are discussed. Offered in alternate years or more frequently with demand.

BOTN 441 Plant Physiology (4) Two lectures and one four-hour laboratory period per week. Prerequisites: BOTN 101 and general chemistry. Organic chemistry strongly recommended. A survey of the general physiological activities of plants.

BOTN 456 Principles of Microscopy (2) Prerequisite: BOTN 420 or its equivalent. An introduction to optical principles that underlie light and electron microscopic image formation. Brightfield, darkfield, phase contrast, differential interference contrast, fluorescence and polarized light microscopy. Comparison of light and electron microscopy. The application of these techniques to problems in biological research.

BOTN 462 Plant Ecology (2) Prerequisite: BOTN 101 or permission of instructor. The dynamics of populations as affected by environmental factors with special emphasis on the structure and composition of natural plant communities, both terrestial and aquatic.

BOTN 463 Ecology of Marsh and Dune Vegetation (2) Prerequisites: BOTN 101 or permission of instructor. An examination of the biology of higher plants in dune and marsh ecosystems.

BOTN 464 Plant Ecology Laboratory (2) Prerequisite: BOTN 462 or its equivalent or concurrent enrollment therein. One three-hour laboratory period a week. Two or three field trips per semester. The application of field and experimental methods to the qualitative and -quantitative study of vegatation and ecosystems.

BOTN 471 Marine and Estuarine Botany (3) Prerequisite: BOTN 441 or equivalent. An ecological discussion of plant life in the marine environment of sea coasts, salt marshes, estuaries and open seas.

BOTN 475 Ganeral Phycology (4) One lecture and two three-hour laboratory periods per week. Prerequisites: BOTN 101 and BOTN 202, or permission of instructor. An introductory study of both macro- and micro-algae, including the taxonomy, morphology, and life cycles of both fresh water and marine forms.

BOTN 476 Biology of Phytoplankton (4) Two lectures and two two-hour laboratories per week. Prerequisite: BOTN 101 and an introductory course in ecology (ZOOL 212 or equivalent) or permission of instructor. Collection, identification, culture, physical and chemical requirements, life cycles, community structure, specialized environments, blooms of phytoplankton.

BOTN 484 Plant Biochemistry (3) Prerequisite: BOTN 441 and CHEM 233. 3 lectures per week. Biochemical processes characteristic of plants, including photosynthesis, nitrogen fixation and biosynthesis of plant macromolecules.

BSOS — Behavioral and Social Sciences

BSOS 200 Introduction to Applied Behavioral and Social Sciences (3) Two lectures and one two-hour laboratory period per week. The generation and utilization of behavioral-social science knowledge. The theoretical approaches of the behavioral-social disciplines and the application of their methods of research. Differences and similarities among the disciplines and their interrelationships in the solution of problems.

BSOS 300 Ethical Issues in Social Science Research (3) Prerequisite: BSOS 200 or three credits in one of the social sciences. Moral and ethical issues in social science research and its uses. Case studies and discussions to develop both an awareness of issues and a level of sophistication to deal with the ethical dilemmas implicit in research on people.

BSOS 308 Contemporary Issues: Interdisciplinary Approaches (3) An interdisciplinary analysis of current public policy issue of international, national and community import. Senior standing recommended. This course may be repeated once for credit, provided a different topic is offered.

CHEM — Chemistry

CHEM 001 Introduction to College Chemistry (2) Two lectures and one recitation per week. An introduction to the study of matter. This course is recommended for students who do not qualify for MATH 110 or higher and who must take CHEM 103. Special fee. This course does not carry credit towards any degree at the University.

CHEM 102 Chemistry of Man's Environment (4) Three lectures and one three-hour laboratory per week. Non-mathematical presentation of basic chemical principles and applications in cosmochemistry, geochemistry, biochemistry, and nuclear chemistry. Emphasis on the development of man's environment and his effect upon it. This course is for the general student and does not satisfy the requirements of the professional schools. Credit may be received for only one course of the following: CHEM 102, 103, 105, 107, 111.

CHEM 103 General Chemistry I (4) Three lectures, one discussion, and one three-hour laboratory per week. Prerequisite: a satisfactory math SAT score or an adequate knowledge of high school chemistry or satisfactory performance in CHEM 101. The first semester of a chemistry sequence intended for students whose curricula require a year or more of chemistry. The nature and composition of matter, chemical calculations, elements and inorganic compounds. Credit may be received for only one course of the following: CHEM 102, 103, 105, 107, 111.

CHEM 104 Fundamentals of Organic and Biochemistry (4) Three lectures, one discussion, and one three-hour laboratory per week Prerequisite CHEM 103 or CHEM 105. Intended for students whose curricula require one year of chemistry Students requiring two or more years of chemistry should register for CHEM 233 or 235 Students may not receive credit for both CHEM 104 and CHEM 233 (or 235) The chemistry of carbon aliphatic compounds, aromatic coA=U9M stereochemistry, halides, amines, and amides, acids, esters, carbohydrates, and natural products

CHEM 105 Principles of General Chemistry I (4) Three lectures, one recitation, and one three-hour laboratory per week A more rigorous treatment of the material of CHEM 103 Admission by invitation of the Chemistry Department based on performance on a qualifying test Credit may be received for only one course of the following: CHEM 102, 103, 105, 107, 111

CHEM 107 Chemistry and Man (3) Lecture course intended for non-chemistry majors The impact of chemistry on human life The chemistry of the universe, of life, of the body, of the mind, of food and drugs, of consumer goods, and of everyday life Credit may be received for only one course of the following: CHEM 102, 103, 105, 107, 111

CHEM 109 College Chemistry Laboratory (1-2) Prerequisite consent of department Laboratory work as required for transfer students whose lower division work at other universities has not included laboratory work

CHEM 111 Chemistry in Modern Life (3) Two lectures and one two-hour laboratory per week An introduction to the fundamental principles of chemistry and chemical terminology, atoms, bonding, energy, and functional groups The course assumes no previous college science This course fulfills the laboratory course required in the University Studies Program Credit may be received for only one course of the following: CHEM 102, 103, 105, 107, 111

CHEM 113 General Chemistry II (4) Three lectures, one recitation, and one three-hour laboratory per week Prerequisite CHEM 103 or 105. Kinetics, homogeneous, hetrogeneous, and ionic equilibria, oxidation-reduction, electrochemistry, chemistry of the elements Credit may be received for only one of: CHEM 113 or 115.

CHEM 115 Principles of General Chemistry II (4) Three lectures, one recitation, and one three-hour laboratory per week Prerequisite CHEM 103 OR 105 and consent of the Chemistry Department A more rigorous treatment of the material in CHEM 113 Credit received for only one of: CHEM 113 OR 115

CHEM 233 Organic Chemistry I (4) Three lectures, one discussion, and one three-hour laboratory per week Prerequisite CHEM 113 or 115 This course is the first of a two-semester sequence in organic chemistry and is intended to be followed by CHEM 243 or 245. The chemistry of carbon aliphatic compounds, aromatic compounds, stereochemistry, arenes, halides, alcohols, esters, and spectroscopy Credit may be received for only one course of CHEM 104, 233, 235

CHEM 235 Principles of Organic Chemistry I (4) Three lectures, one discussion, and one three-hour laboratory per week Prerequisite CHEM 113 OR 115 and consent of the Chemistry Department A more rigorous treatment of the material of CHEM 233 This course is the first of a two-semester sequence in organic chemistry Credit may be received for only one course of: CHEM 104, 233, 235

CHEM 243 Organic Chemistry II (4) Three lectures, one recitation, and one three-hour laboratory per week Prerequisite CHEM 243 or 235 A continuation of CHEM 233 with emphasis on molecular structure, substitution reactions, carbonium ions, aromaticity, synthetic processes, macro-molecules Credit may be received for only one of: CHEM 243 or 245

CHEM 245 Principles of Organic Chemistry II (4) Three lectures, one recitation, and one three-hour laboratory per week Prerequisite CHEM 233 OR 235 and consent of the Chemistry Department A more rigorous treatment of the material in CHEM 243 Credit may be received for only one of: CHEM 243 OR 245

CHEM 287 Computer Programming for the Biological and Chemical Sciences (4) Three lectures and three hours of laboratory per week Prerequisite one year of college chemistry or biological science Introduction to a structured programming language (PASCAL), with examples and applications chosen from the biological and chemical sciences

CHEM 302 Radiochemical Safety Procedures (1) One lecture per week A lecture and demonstration course Radiation hazards, principles and practices of radiation safety, federal (AEC, ICC) codes and state public health

CHEM 321 Quantitative Analysis (4) Two lectures and two three-hour laboratory periods per week Prerequisite CHEM 113 OR 115 Volumetric, gravimetric, electrometric, and colorimetric methods in analytical inorganic chemistry

CHEM 374 Technology, Energy and Risk (3) Prerequisite completion of USP Distributive Studies Area B Decision-making in a technological, democratic society Current issues such as acid rain nuclear power, synthetic organic chemicals

CHEM 398 Special Projects (2) Honors projects for undergraduate students

CHEM 399 Introduction to Chemical Research (1-2) Prerequisite junior standing Registration only upon consent of the course coordinator The course will allow students to conduct basic research under the supervision of a member of the department May be repeated for credit to a maximum of four credits

CHEM 401 Inorganic Chemistry (3) Three lectures per week Prerequisite CHEM 481

CHEM 403 Radiochemistry (3) Three lectures per week Prerequisite one year of college chemistry and one year of college physics Radioactive decay introduction to properties of atomic nuclei, nuclear processes in cosmology chemical, biomedical and environmental applications of radioactivity; nuclear processes as chemical tools, interaction of radiation with matter

CHEM 421 Advanced Quantitative Analysis (3) Pre or corequisite CHEM 482 and CHEM 483 An examination of some advanced topics in quantitative analysis including nonaqueous titrations, precipitation, phenomena, complex equilibria, and the analytical chemistry of the less familiar elements

CHEM 425 Instrumental Methods of Analysis (3) One lecture and two three-hour laboratory periods per week Prerequisite CHEM 321 An introduction to modern instrumentation in analytical chemistry Electronics, spectroscopy, chromatography and electrochemistry

CHEM 433 Chemical Synthesis (3) One lecture and two three-hour laboratory periods per week Prerequisites CHEM 113 OR 115, AND 243 OR 245

CHEM 441 Advanced Organic Chemistry (3) Prerequisite CHEM 481 An advanced study of the compounds of carbon, with special emphasis on molecular orbital theory and organic reaction mechanisms

CHEM 443 Qualitative Organic Analysis (3) One lecture and two three-hour laboratory periods per week Prerequisites CHEM 113 OR 115, AND 243 OR 245 The systematic identification of organic compounds

CHEM 473 Geochemistry of Solids (3) Three lectures per week Prerequisite CHEM 482 or GEOL 422 Principles of crystal chemistry applied to structures, properties and reactions of minerals and non-metallic solids Emphasis is placed on the relation of structural stability to bonding, ionic size, charge, order-disorder, polymorphism, and isomorphism

CHEM 474 Environmental Chemistry (3) Three lectures per week Prerequisite CHEM 481, or equivalent The sources of various elements and chemical reactions between them in the atmosphere and hydrosphere are treated Causes and biological effects of air and water pollution by certain elements are discussed

CHEM 481 Physical Chemistry I (3) Prerequisites CHEM 113 or 115, CHEM 243 or 245, MATH 141, PHYS 142 or PHYS 263 (PHYS 263 may be taken concurrently), or consent of instructor A course primarily for chemists and chemical engineers

CHEM 482 Physical Chemistry II (3) Three lectures per week Prerequisite CHEM 481, or consent of instructor A course primarily for chemists and chemical engineers

CHEM 483 Physical Chemistry Laboratory I (2) One hour lecture-recitation and one-three hour laboratory period per week Corequisite CHEM 481 An introduction to the principles and application of quantitative techniques in physical chemical measurements Experiments will be coordinated with topics in CHEM 481

CHEM 484 Physical Chemistry Laboratory II (2) One hour lecture-recitation and one-three hour laboratory period per week Prerequisite CHEM 481, 483, corequisite CHEM 482 A continuation of CHEM 483 Advanced quantitative techniques necessary in physical chemical measurements Experiments will be coordinated with topics in CHEM 482

CHEM 485 Advanced Physical Chemistry (2) Prerequisite CHEM 482 Quantum chemistry and other selected topics

CHEM 486 Advanced Physical Chemistry Laboratory (2) Two three-hour laboratory periods per week Prerequisites CHEM 482 and consent of instructor

CHEM 487 Computer Applications in the Biological and Chemical Sciences (4) Three lectures one recitation, and one three-hour laboratory per week Prerequisites CHEM 113, CHEM 287 or equivalent and knowledge of a scientific programming language (PASCAL, FORTRAN or 'C') The utilization of computers to solve chemical and biological problems, with emphasis on the utilization of available software rather than de novo programming

CHEM 498 Special Topics in Chemistry (3) Three lectures or two lectures and one three-hour laboratory per week Prerequisite varies with the nature of the topic being considered Course may be repeated for credit if the subject matter is substantially different but not more than three credits may be accepted in satisfaction of major supporting area requirements for chemistry majors

CHIN — Chinese

CHIN 101 Intensive Elementary Chinese I (6) Introduction to speaking, reading and writing Chinese with an emphasis on mastering the essentials of pronunciation, basic characters and structural patterns

CHIN 102 Elementary Spoken Chinese (3) Prerequisite CHIN 102 or equivalent Continued study of grammatical patterns and vocabulary buildup with particular emphasis on conversation May be taken in conjunction with CHIN 103

CHIN 103 Elementary Written Chinese (3) Prerequisite CHIN 101 or equivalent Continued study of grammatical patterns and buildup of vocabulary with particular emphasis on reading and writing May be taken in conjunction with CHIN 102

CHIN 201 Intermediate Spoken Chinese I (3) Prerequisite CHIN 102 or equivalent Emphasis on development of conversational skills with vocabulary build-up and pattern drills

CHIN 202 Intermediate Written Chinese I (3) Prerequisite CHIN 103 or equivalent Reading and writing skills with emphasis on grammar and Chinese characters

CHIN 203 Intermediate Spoken Chinese II (3) Prerequisite CHIN 201 or equivalent Continuation of CHIN 201

CHIN 204 Intermediate Written Chinese II (3) Prerequisite CHIN 202 or equivalent Continuation of CHIN 202

CHIN 213 Chinese Poetry into English: An Introduction (3) Issues in the intercultural and interlingual interpretation of foreign literature through the study of Western translations of and scholarship on selected Chinese poets No knowledge of Chinese required

CHIN 301 Advanced Chinese I (3) Prerequisite CHIN 202 or equivalent Readings in expository and fictional writing with conversation and composition Not open to native speakers of Chinese

CHIN 302 Advanced Chinese II (3) Prerequisite CHIN 301 or equivalent Continuation of CHIN 301 Not open to native speakers

CHIN 303 Business Chinese I (3) Prerequisite CHIN 203 and 204 or equivalent Conversation reading, and writing applicable to Chinese business transactions social meetings, and meetings with government organizations plus background material in English on professional business practices and social customs associated with business

CHIN 304 Business Chinese II (3) Prerequisite CHIN 303 or equivalent Continuation of CHIN 303

CHIN 313 Chinese Poetry and Prose in Translation (3) Writing of the major poets, essayists and historians from the 10th century B C To the 19th century A D No prior knowledge of Chinese is required

CHIN 314 Chinese Fiction and Drama in Translation (3) Representative short stories, novels, and plays on themes of love murder history and the supernatural No prior knowledge of Chinese is required

CHIN 315 Modern Chinese Literature in Translation (3) Major works of fiction and drama from 1920 to the present read in the context of social and literary change Emphasis on western and traditional Chinese influences on the writers and their work

CHIN 388 Topics in Chinese Literature in Translation (3) Analysis of significant themes and structures in Chinese literature Repeatable to a maximum of six credits

CHIN 401 Readings in Modern Chinese I (3) Prerequisite CHIN 302 or equivalent Readings in history politics economics sociology and literature Emphasis on wide ranging rapid reading reinforced by conversations and compositions Not open to native speakers of Chinese

CHIN 402 Readings in Modern Chinese II (3) Prerequisite CHIN 401 or equivalent Continuation of CHIN 401 Not open to native speakers

CHIN 403 Classical Chinese I (3) Prerequisite CHIN 302 Introductory classical Chinese using literary and historical sources in the original language

CHIN 404 Classical Chinese II (3) Prerequisite CHIN 302 Further classical studies by various writers from famous ancient philosophers to prominent scholars before the new culture movement

CHIN 405 Advanced Conversation and Composition (3) Prerequisite: CHIN 302 or permission of instructor. Practice in writing essays, letters and reports on selected topics. Conversation directed toward everyday situations and topics related to life in china. Conducted in Chinese. Not open to native speakers.

CHIN 415 Readings in Current Newspapers and Periodicals (3) Prerequisite: CHIN 402 or equivalent. Reading of periodical literature on selected topics with discussions and essays in Chinese.

CHIN 421 Sounds and Transcriptions of Mandarin Chinese (3) Production and recognition of Mandarin speech sounds and tones; their phonological patterns; comparison with English; and representation by the various Romanization systems.

CHIN 422 Advanced Chinese Grammar (3) Chinese sentence patterns studied contrastively with English and in terms of current pedagogical as well as linguistic theories.

CHIN 431 Translation and Interpretation I (3) Prerequisite: CHIN 202 or equivalent. Introduction to the history and theories of translation-interpretation; contrastive studies of the structures of English and Chinese; development of the four language skills.

CHIN 432 Translation and Interpretation II (3) Prerequisite: CHIN 431 or equivalent.

CHIN 441 Traditional Chinese Fiction (3) Prerequisite: CHIN 314 or permission of instructor. Major works of fiction from the 4th century tales of the marvelous through the 19th century Ching novel. Taught in Chinese.

CHIN 442 Modern Chinese Fiction (3) Prerequisite: CHIN 315 or permission of instructor. Examination, through selected texts, of the writer's role as shaper and reflector of the republican and communist revolutions. Taught in Chinese.

CHIN 499 Directed Study in Chinese (1-3) Prerequisite: permission of instructor. Readings in Chinese under faculty supervision. If content differs, repeatable to a maximum of six credits.

CJUS — Institute of Criminal Justice and Criminology

CJUS 100 Introduction to Law Enforcement (3) Introduction to the administration of criminal justice in a democratic society with emphasis upon the theoretical and historical development of law enforcement. The principles of organization and administration for law enforcement, functions and specific activities, planning and research, public relations, personnel and training, inspection and control, direction, policy formulation.

CJUS 220 Investigation in Law Enforcement (3) Investigation as a process of communication. Principles and problems in information collection and evaluation, impartial gathering and evaluation of data. Crime scene search and recording, collection and preservation of physical evidence, scientific aids, modus operandi, sources of information, interviewing, follow-up and case preparation.

CJUS 230 Criminal Law in Action (3) Law as one of the methods of social control. Criminal law: its nature, sources and types; theories and historical developments. Behavioral and legal aspects of criminal acts. Classification and analysis of selected criminal offenses.

CJUS 234 Criminal Procedure and Evidence (3) Prerequisite: CJUS 230. General principles and theories of criminal procedure. Due process. Arrest, search and seizure. Recent developments. Study and evaluation of evidence and proof.

CJUS 300 Criminological and Criminal Justice Research Methods (3) Prerequisites: CJUS 100, CRIM 220 and one of the following: SOCY 201, PSYC 200, ECON 421, BMGT 230, EDMS 451 or GVPT 422. Introduction to the formulation of research questions covering crime and justice, research designs, data collection, and interpretation and reporting in criminological and justice-system settings.

CJUS 320 Introduction to Criminalistics (3) Two hours of lecture and two hours of laboratory per week. Prerequisites: CJUS 220 and consent of instructor. An introduction to modern methods used in the detection, investigation and solution of crimes. Practical analysis of evidence in a criminal investigation laboratory, including photography, fingerprints and other impressions, ballistics, glass, hair, handwriting and document examination, drug analysis, and lie detection.

CJUS 330 Contemporary Legal Policy Issues (3) Prerequisites: CJUS 230 and 234 or equivalent. In-depth examination of selected topics. Criminal responsibility. Socio-legal policy alternatives with regard to deviance. Law enforcement procedures for civil law and similar legal problems. Admissibility of evidence. Representation. Indigent's right to counsel.

CJUS 340 Concepts of Law Enforcement Administration (3) Prerequisite: CJUS 100 or equivalent. An introduction to concepts of organization and management as these relate to law enforcement. Principles of structure, process, policy and procedure, communication and authority, division of work and organizational controls. Human element in the organization. Informal interaction and bureaucracy.

CJUS 350 Law Enforcement-Community Relations (3) Prerequisite: CJUS 100 or equivalent. Examination of factors contributing to cooperation or friction between law enforcement personnel and the community, with emphasis on minority groups, political pressures, and cultural problems. Community organization and social responsibility of law enforcement.

CJUS 360 Industrial and Retail Security Administration (3) Prerequisite: CJUS 100, 220 or consent of instructor. The origins of contemporary private security systems. Organization and management of industrial and retail protective units.

CJUS 388 Independent Reading in Law Enforcement (3) H. Honors. Prerequisite: consent of instructor. Supervised study of selected topic in criminal justice. Repeatable to a maximum of six credits.

CJUS 389 Independent Research in Law Enforcement (3) H. Honors. Prerequisite: consent of instructor. Supervised study of selected topic in criminal justice. Repeatable to a maximum of six credits.

CJUS 398 Law Enforcement Field Training (1-6) Prerequisites: 6 credits of law enforcement, consent of instructor. Supervised, structured and focused field training in law enforcement agencies. Repeatable to a maximum of six credits.

CJUS 399 Directed Independent Research (1-3) Prerequisites: 12 credit hours in law enforcement or criminology, consent of instructor. Supervised individual research and study, library and field research, surveys, special local problems. Repeatable to a maximum of six credits.

CJUS 400 Criminal Courts (3) Prerequisites: CJUS 100 or consent of instructor. Criminal courts in the United States at all levels, judges, prosecutors, defenders, clerks, court administrators, and the nature of their jobs, problems facing courts and prosecutors today and problems of administration, reforms.

CJUS 444 Advanced Law Enforcement Administration (3) Prerequisite: CJUS 340 or consent of instructor. The structuring of manpower, material, and systems to accomplish the major goals of social control. Personnel and systems management. Political controls and limitations on authority and jurisdiction.

CJUS 455 Dynamics of Planned Change in Criminal Justice I (3) Prerequisite: consent of instructor. An examination of conceptual and practical issues related to planned change in criminal justice. Emphasis on the development of innovative ideas using a research and development approach to change.

CJUS 456 Dynamics of Planned Change in Criminal Justice II (3) Prerequisite: CJUS 455 or consent of instructor. An examination of conceptual and practical issues related to planned change in criminal justice. Emphasis on change strategies and tactics which are appropriate for criminal justice personnel in entry level positions.

CJUS 462 Special Problems in Security Administration (3) Prerequisites: CJUS 360 and consent of instructor. An advanced course for students desiring to focus on specific concerns in the study of private security organizations, business intelligence and espionage, vulnerability and criticality analyses in physical security, transportation, banking, hospital and military security problems, uniformed security forces; national defense information, and others.

CJUS 498 Selected Topics in Criminal Justice (1-6) Prerequisite: consent of instructor. Supervised study of a selected topic to be announced in the field of criminal justice. Repeatable to a maximum of six credits.

CLAS — Classics

CLAS 100 Classical Foundations (3) Aspects of the ancient world taught through the medium of influential classical texts.

CLAS 170 Greek and Roman Mythology (3) Taught in English; no prerequisite; cannot be taken for language credit. This course is particularly recommended for students planning to major in foreign languages, English, history, the fine arts, or journalism.

CLAS 270 Greek Literature in Translation (3) Selections in translation of Greek literature from Homer to Hellenistic literature, with special emphasis on epic and dramatic poetry. No knowledge of Greek or Latin is required.

CLAS 271 Roman Literature in Translation (3) Selections in translation of Roman literature to the time of Apuleius. Special emphasis will be placed on poetry of the Augustan Age. No knowledge of Latin is required.

CLAS 280 English Word Building From Latin and Greek (3) General English vocabulary through the study of Latin and Greek roots, prefixes, suffixes, etymologies, and principles of linguistic change.

CLAS 290 Greek and Latin Medical Terminology (3) Basic medical vocabulary through the study of Greek and Latin roots, prefixes and suffixes. No previous knowledge of Greek or Latin required.

CLAS 309 Special Topics in Classical Literature (3) May be repeated to a maximum of nine hours when the topics differ. May not be counted toward a major in Latin or a concentration in Greek. Readings in translation.

CLAS 320 Women in Classical Antiquity (3) A study of women's image and reality in ancient Greek and Roman societies through an examination of literary, linguistic, historical, legal and artistic evidence; special emphasis in women's role in the family, views of female sexuality, and the place of women in creative art. Readings in primary sources in translation and modern critical writings.

CLAS 374 Greek Tragedy in Translation (3) Study and analysis of the tragedies of Aeschylus, Sophocles and Euripides with special attention to the concepts of character and of thought as conceived by Aristotle in The Poetics.

CLAS 470 Advanced Greek and Roman Mythology (3) Prerequisites: CLAS 170 or permission of instructor. Selected themes and characters of Greek and Roman myth. History of the study of myth and research methods in mythology.

CLAS 488 Independent Study in Classical Civilization (3) Prerequisite: permission of department. Repeatable to 6 credits if content differs.

CLAS 494 Senior Seminar in Classics (3) Limited to graduating classics majors. To be taken in the last year and preferably the last semester of the undergraduate program. Topics will vary each semester; most will be interdisciplinary or will cross historical periods. The course will provide a seminar experience in material or methodologies not otherwise available to the major.

CLAS 495 Senior Thesis in Classics (3) Prerequisite: permission of department. Prior departmental approval of research topic is required. Available to all students who wish to pursue a specific research topic.

CLAS 499 Independent Study in Classical Languages and Literatures (1-3) Prerequisite: permission of department.

CMLT — Comparative Literature

CMLT 401 Introductory Survey of Comparative Literature (3) Survey of the background of European literature through study of Greek and Latin literature in English translations; discussing the debt of modern literature to the ancients.

CMLT 402 Introductory Survey of Comparative Literature (3) Study of the medieval and modern continental literature.

CMLT 411 The Greek Drama (3) The chief works of Aeschylus, Sophocles, Euripides, and Aristophanes in English translations. Emphasis on the historic background on dramatic structure, and on the effect of the Attic drama upon the mind of the civilized world.

CMLT 415 The Old Testament As Literature (3) A study of sources, development and literary types.

CMLT 416 New Testament As Literature (3) A study of the books of the New Testament, with attention to the relevant historical background and to the transmission of the text. A knowledge of Greek is helpful, but not essential.

CMLT 421 The Classical Tradition and Its Influence in the Middle Ages and the Renaissance (3) Emphasis on major writers. Reading knowledge of Greek or Latin required.

CMLT 422 The Classical Tradition and Its Influence in the Middle Ages and the Renaissance (3) Emphasis on major writers. Reading knowledge of Greek or Latin required.

CMLT 430 Literature of the Middle Ages (3) Narrative, dramatic and lyric literature of the middle ages studied in translation.

CMLT 433 Dante and the Romance Tradition (3) A reading of the divine comedy to enlighten the discovery of reality in western literature.

CMLT 461 Romanticism: Early Stages (3) Emphasis on England, France and Germany. Reading knowledge of French or German required.

CMLT 462 Romanticism: Flowering and Influence (3) Emphasis on England, France and Germany. Reading knowledge of French or German required.

CMLT 469 The Continental Novel (3) The novel in translation from Stendhal through the existentialists, selected from literatures of France, Germany, Italy, Russia, and Spain.

CMLT 470 Ibsen and the Continental Drama (3) Emphasis on the major work of Ibsen, with some attention given to selected predecessors, contemporaries and successors.

CMLT 479 Major Contemporary Authors (3)

CMLT 488 Genres (3) A study of a recognized literary form, such as tragedy, epic, satire, literary criticism, comedy, tragicomedy, etc The course may be repeated for cumulative credit up to six hours when different material is presented

CMLT 489 Major Writers (3) Each semester two major writers from different cultures and languages will be studied Authors will be chosen on the basis of significant relationships of cultural and aesthetic contexts, analogies between their respective works, and the importance of each writer to his literary tradition

CMLT 496 Conference Course in Comparative Literature (3) Second semester A tutorial type discussion course, correlating the courses in various literatures which the student has previously taken with the primary themes and masterpieces of world literature This course is required of undergraduate majors in comparative literature, but must not be taken until the final year of the student's program.

CMLT 498 Selected Topics in Comparative Literature (3)

CMSC — Computer Science

CMSC 103 Introduction to Computing (3) An introduction to computing for non-computer science majors Basic terminology and concepts of computing Hands-on experience on personal computer with applications software such as word processor, spreadsheet, and database management system. Social issues of computing (Not applicable to the major requirements in computer science)

CMSC 110 Introduction to Fortran Programming (4) Three lectures and two hours of laboratory each week. Pre- or corequisite: MATH 140 or MATH 220. Construction of algorithms and the efficient solution of computational problems Conducted in FORTRAN Intended for scientists, engineers, and business majors. Not applicable to the major requirements in computer science

CMSC 112 Computer Science I (4) Three hours of lecture and two hours of laboratory per week Pre- or corequisite MATH 140 Design and analysis of programs using structured programming and data abstraction. Formal syntax and semantics, and program verification Conducted in Pascal Intended for computer science majors

CMSC 113 Computer Science II (4) Three hours of lecture and two hours of laboratory per week Prerequisite: CMSC 112. Pre- or corequisite: MATH 141 A continuation of CMSC 112 Intended for computer science majors Credit will be given for only one course CMSC 113, 120 or 122.

CMSC 120 Introduction to Pascal Programming (4) Three hours of lecture and two hours of laboratory per week Prerequisite MATH 110 Design and analysis of programs in Pascal An introduction to computing, using structured programming concepts Not applicable to the major requirements in computer science Credit will be given for only one course CMSC 113, 120 or 122

CMSC 211 Assembly Language Programming (3) Two lectures and two laboratories per week Prerequisite CMSC 120 or CMSC 122 Assembly language programming, assemblers, loaders, linkage editors, and macros

CMSC 220 Introduction to File Processing (3) Prerequisite CMSC 120 or CMSC 122 Characteristics and use of peripheral memory devices for sequential and direct access file processing Techniques such as sorting and searching, hash coding, and table look-up

CMSC 250 Introduction to Discrete Structures (3) Prerequisite CMSC 110 or CMSC 112, MATH 111 or equivalent Fundamental mathematical concepts and algebraic structures, such as sets, relations, functions, semigroups, monoids, and Boolean algebras Introduction to the theory of graphs and trees and their realization as computer programs Emphasis on examples and applications rather than mathematical rigor

CMSC 311 Computer Organization (3) Prerequisite CMSC 122 Introduction to assembly language Design of digital logic circuits Organization of central processors, including instruction sets, register transfer operations, control microprogramming, data representation, and arithmetic algorithms Memory and input/output organization

CMSC 330 Organization of Programming Languages (3) Prerequisite CMSC 122 The run-time organization of programming languages Algebraic languages (e.g Algol, Simpl. PL/1, Pascal) via their in-time storage structures Dynamic versus static activation records Storage for strings and arrays Interpretive systems such as APL and SNOBOL4

CMSC 388 Special Computational Laboratory (1-2) Two hours laboratory per week for each credit hour Prerequisite CMSC 103 or equivalent Arranged for special groups of students to give experience in developing algorithmic solutions of problems or using particular computational systems. May be taken for cumulative credit up to a maximum of six hours where different material is covered

CMSC 390 Honors Paper (3) Prerequisite admission to CMSC Honors Program Special study or research directed toward preparation of honors paper

CMSC 400 Introduction to Computer Languages and Systems (3) Prerequisite MATH 241 or equivalent A terminal course suitable for non-CMSC majors with no programming background Organization and characteristics of computers Procedure oriented and assembly languages Representation of data, characters and instructions Introduction to logic design and systems organization Macro definition and generation Program segmentation and linkage. Extensive use of the computer to complete projects illustrating programming techniques and machine structure (CMSC 400 may not be counted for credit in the graduate program in computer science)

CMSC 411 Computer System Architecture (3) Prerequisite CMSC 311 or equivalent Input/output processors and techniques Intra-system communication, buses, caches Addressing and memory hierarchies Microprogramming, parallelism, and pipeling

CMSC 412 Operating Systems (3) Prerequisite CMSC 311 or equivalent An introduction to batch systems, spooling systems, and third-generation multiprogramming systems Description of the parts of an operating system in terms of function, structure, and implementation Basic resource allocation policies

CMSC 415 Systems Programming (3) Prerequisite CMSC 412 Basic algorithms of operating system software Memory management using linkage editors and loaders, dynamic relocation with base registers, paging File systems and input/output control Processor allocation for multiprogramming, timeshanng Emphasis on practical systems programming, including projects such as a simple linkage editor, a stand-alone executive, a file system, etc

CMSC 420 Data Structures (3) Prerequisite CMSC 220 or equivalent Description, properties, and storage allocation of data structures including lists and trees Algorithms for manipulating structures Applications from areas such as data processing, information retrieval, symbol manipulation, and operating systems

CMSC 421 Introduction to Artificial Intelligence (3) Prerequisite CMSC 330 and 420 Areas and issues in artificial intelligence, including search, inference, knowledge representation, learning, vision, natural languages, expert systems, robotics Implementation and application of programming languages (e.g LISP, PROLOG, SMALLTALK), programming techniques (e.g pattern matching, discrimination networks) and control structures (e.g agendas, data dependencies)

CMSC 424 Database Design (3) Prerequisites CMSC 220 and CMSC 420. (CMSC 450 recommended) Motivation for the database approach as a mechanism for modelling the real world Review of the three popular data models relational, network, and hierarchical Comparison of permissible structures, integrity constraints, storage strategies, and query facilities Theory of database design logic

CMSC 426 Image Processing (3) Prerequisite CMSC 420 or equivalent An introduction to basic techniques of analysis and manipulation of pictorial data by computer Image input/output devices, image processing software, enhancement, segmentation, property measurement, Fourier analysis Computer encoding, processing, and analysis of curves

CMSC 430 Theory of Language Translation (3) Prerequisite CMSC 330 Formal translation of programming languages, program syntax and semantics Finite state grammars and recognizers Context- free parsing techniques such as recursive descent, prededence, LL(K), LR(K) and SLR(K) Machine independent code improvement and generation, syntax-directed translation schema

CMSC 432 Compiler Writing (3) Prerequisites CMSC 220, 330, 430 A detailed examination of a compiler for an algebraic language designed around the writing of a compiler as the major part of the course Scanning and parsing, code generation, optimization and error recovery and compiler writing techniques such as bootstrapping and translator writing systems

CMSC 434 Human Factors in Computer and Information Systems (3) Prerequisites CMSC 330, PSYC 100, and STAT 400 Human factors issues in the development of software, the use of database systems, and the design of interactive computer systems Experimentation on programming language control and data structures, programming style issues, documentation program development strategies, debugging and readability will be emphasized Interactive system design issues such as response time, display rates, graphics, on-line assistance, command language, menu selection, or speech input/output

CMSC 435 Software Design and Development (3) Prerequisite CMSC 420 AND 430 or equivalent State-of the-art techniques in software design and development Laboratory experience in applying the techniques covered Structured design, structured programming, top-down design and development, segmentation and modularization techniques, iterative enhancement design and code inspection techniques correctness and chief-programmer teams The development of a large software project

CMSC 450 Elementary Logic and Algorithms (3) Prerequisite: MATH 240 or consent of instructor This is the same course as MATH 444 An elementary development of propositional logic predicate logic, set algebra, and Boolean algebra, with a discussion of Markov algorithms, turing machines and recursive functions Topics include post productions, word problems, and formal languages

CMSC 451 Design and Analysis of Computer Algorithms (3) Prerequisites CMSC 122 and CMSC 250 CMSC 420 recommended Fundamental techniques for designing and analyzing computer algorithms Basic methods include Greedy methods, divide-and-conquer techniques, search and traversal techniques, dynamic programming, backtracking methods, branch-and bound methods, and algebraic transformations

CMSC 452 Elementary Theory of Computation (3) Prerequisites CMSC 122 and 250 Introduction to alternative theoretical models of computation types of automata and their relations to formal grammars and languages

CMSC 456 Data Encryption and Security (3) Prerequisite CMSC 420 and CMSC 451 Methods of protecting computer data from unauthorized use and users by data encryption and by access and information controls Classical cryptographic systems Introduction to several modern systems such as Data Encryption Standard and public-key cryptosystems

CMSC 460 Computational Methods (3) Prerequisites MATH 240 and MATH 241 and CMSC 110 or CMSC 113 Also offered as MAPL 460 Basic computational methods for interpolation, least squares, approximation, numerical quadrature, numerical solution of polynomial and transcendental equations systems of linear equations and initial value problems for ordinary differential equations Emphasis is on methods and their computational properties rather than their analytic aspects Intended primarily for students in the physical and engineering sciences Credit will not be granted for both CMSC/MAPL 460 and CMSC/ MAPL 466.

CMSC 466 Introduction to Numerical Analysis I (3) Prerequisites MATH 240, and MATH 241 and CMSC 110 or equivalent Also offered as MAPL 466 Floating point computations, direct methods for linear systems, interpolation, solution of nonlinear equations Credit will not be granted for both CMSC MAPL 460 and CMSC MAPL 466

CMSC 467 Introduction to Numerical Analysis II (3) Prerequisite MAPL/CMSC 466 Advanced interpolation, linear least squares eigenvalue problems ordinary differential equations Fast Fourier Transforms (also listed as MAPL 467)

CMSC 475 Combinatorics and Graph Theory (3) Prerequisite MATH 240 and MATH 241 General enumeration methods difference equations, generating functions Elements of graph theory matrix representations of graphs, applications of graph theory to transport networks, matching theory and graphical algorithms. (Also listed as MATH 475)

CMSC 477 Optimization (3) Prerequisite: CMSC/MAPL 460, 466, or 467 Linear programming including the simplex algorithm and dual linear programs, convex sets and elements of convex programming combinatorial optimization, integer programming Credit will not be granted for both CMSC 477 and MAPL 477

CMSC 498 Special Problems in Computer Science (1-3) Prerequisite permission of instructor An individualized course designed to allow a student or students to pursue a specialized topic or project under the supervision of the senior staff Credit according to work done

CNEC — Consumer Economics

CNEC 100 Introduction to Consumer Economics (3) The role of the consumer in modern society Topics include the consumer in the market, the impact of market failures on the quality of life and the impact of government and business decisions on consumer welfare

CNEC 298 Special Topics (1-3) Prerequisite permission of department Repeatable to 6 credits if content differs Topics of special interest to lower division students under the guidance of department faculty

CNEC 300 Professional Development (1) A series of lectures focused on career options, career preparation and professional development for majors in textiles and consumer economics

CNEC 310 Consumer Economics and Public Policy (3) Prerequisites ECON 201 and ECON 203 The application of economic theory including benefit-cost analysis to an evaluation of policy decisions in the private and public sectors which affect the consumer The economic social, and political framework within which policy decisions are made

CNEC 385 Junior Honors Seminar (1) Limited to juniors in the departmental honors program Spring semester Readings, reports and discussion of selected topics

CNEC 396 Field Work and Analysis in Consumer Economics (3-6) Prerequisites permission of department Students must apply a semester in advance For CNEC majors only Supervised, professional field work experience in business, industry government or education A seminar and a written critique of the field work experience will be required to relate formal academic study to student work experiences

CNEC 400 Research Methods (3) Prerequisite MATH 110 or MATH 115 Not open to students who have completed TEXT 400 or BMGT 230 Research methodology in textiles and consumer economics, with particular emphasis on the application of statistical concepts and techniques to the analysis of data from the areas of textiles and consumer economics

CNEC 410 Consumer Finance (3) Prerequisites ECON 201, and ECON 203 Not open to students who have completed FMCD 441 An economic approach to the problems of income allocation and consumer financial planning including income maximization, principles of asset choice, financial management and risk management The effects of fiscal and monetary policies on lifetime economic planning

CNEC 431 The Consumer and the Law (3) A study of legislation affecting consumer goods and services Topics covered include product safety and liability, packaging and labeling, deceptive advertising, and consumer credit The implications of such legislation for consumer welfare with particular emphasis on the disadvantaged groups in our society will be examined

CNEC 433 Consumer Law: Advertising and Solicitation (3) Prerequisite CNEC 431 or permission of department An advanced study of the legal consequences of inducing consumers to enter into commercial transactions Individual consumer remedies, collective consumer remedies and government regulation

CNEC 435 Economics of Consumption (3) Prerequisites [ECON 201, and ECON 203] or [ECON 205 for non-majors] The application of economic theory to a study of consumer decision-making and its role in a market economy at both the individual and aggregate levels Topics covered include empirical studies of consumer spending and saving, the consumer in the market and collective consumption

CNEC 437 Consumer Behavior (3) Prerequisites PSYC 100, and SOCY 100 An application of the behavioral sciences to a study of consumer behavior Current theories, models and empirical research findings are explored

CNEC 455 Product Standards (3) Prerequisite permission of department The process of product standard development, and the significance of such standards to the consumer History, procedures and uses of standards by industry and government, including both voluntary and regulatory standardization, the impact of product standards, and mechanisms for obtaining consumer input in the standardization process

CNEC 456 Product Liability and Government Regulation (3) Prerequisite CNEC 431 or permission of department Legal concepts involved in society's determination of consumer's rights to product safety Litigation determining the obligation of manufacturers and sellers to injured consumers Government regulations defining the obligations of manufacturers to design and construct products in accordance with government standards

CNEC 457 Product Safety (3) Prerequisite permission of department An interdisciplinary investigation of consumer product safety Major statutes and agencies regulating safety Alternative means of promoting consumer product safety The application of product liability and cost benefit analysis to the economics of product safety Consumer response to safety labeling, advertising and educational efforts

CNEC 488 Senior Honors Thesis (1-4) Limited to undergraduate students in the departmental honors program An independent literary, laboratory or field study, conducted throughout the student's senior year Student should register in both fall and spring

CNEC 498 Special Studies (2-4) Independent study by an individual student or by a group of students in advanced work not otherwise provided in the department Students must prepare a description of the study they wish to undertake The plan must be approved by the faculty directing the study and the department chairman

COOP — Cooperative Education Program

COOP 098 Co-Op Work Experience I (0) Prerequisites satisfactory completion of 36 credits, and consent of the Director of the Cooperative Education Program Practical, full-time work experience in either private or government agencies which supplements and enhances the theories , principles, and practices in the normal education program The student must register for COOP 098 for each summer work experience and for both COOP 098 and 099 for each semester work experience

COOP 099 Co-Op Work Experience II (0) Prerequisites: satisfactory completion of 36 credits, and consent of the Director of the Cooperative Education Program Practical, full-time work experience in either private or government agencies which supplements and enhances the theories, principles, and practices in the normal education program The student must register for COOP 098 for each summer work experience and for both COOP 098 and 099 for each semester work experience

CRIM — Criminology

CRIM 220 Criminology (3) Prerequisites SOCY 100 and sophomore standing Criminal behavior and the methods of its study, causation; typologies of criminal acts and offenders, punishment, correction and incapacitation, prevention of crime

CRIM 359 Field Training in Criminology and Corrections (1-6) Prerequisites: six credits in criminology and consent of instructor Supervised field training in public or private social agencies Group meetings, individual conferences and written program reports. Repeatable to a maximum of six credits

CRIM 360 Victimology (3) Prerequisites CRIM 220 or consent of instructor Overview of the history and theory of victimology Analysis of victimization patterns with special emphasis on types of victims and crimes The interaction between victims of crime and the criminal justice system with respect to the role of the victim and the services offered to the victim

CRIM 388 Independent Reading Course in Criminology (3) Prerequisite SOCY 100 For honors students only This course is designed for the needs of honors students in criminology

CRIM 389 Independent Research in Criminology (3) Prerequisite SOCY 100 For honors students only This course is designed for the needs of the honors students in criminology

CRIM 399 Independent Study in Criminology (1-3) Prerequisites 12 credits in criminology or law enforcement; consent of instructor Integrated reading or research under direction and supervision of a faculty member Repeatable to a maximum of six credits

CRIM 432 Law of Corrections (3) Prerequisite: LENF 230 OR 234 and CRIM 220. A review of the law of criminal corrections from sentencing to final release or release on parole Probation, punishments, special treatments for special offenders, parole and pardon, and the prisoner's civil rights are also examined.

CRIM 450 Juvenile Delinquency (3) Prerequisite: SOCY 100 Juvenile delinquency in relation to the general problem of crime, analysis of factors underlying juvenile delinquency; treatment and prevention.

CRIM 451 Crime and Delinquency Prevention (3) Prerequisites: CRIM 220 or CRIM 450 or consent of instructor Methods and programs in prevention of crime and delinquency

CRIM 452 Treatment of Criminals and Delinquents in the Community (3) Prerequisite CRIM 220 or CRIM 450 or consent of instructor Analysis of the processes and methods in the modification of criminal patterns of behavior in a community setting

CRIM 453 Institutional Treatment of Criminals and Delinquents (3) Prerequisite CRIM 220 or CRIM 450 or consent of instructor History, organization and functions of penal and correctional institutions for adults and juveniles

CRIM 454 Contemporary Criminological Theory (3) Prerequisite CRIM 220, CRIM 450, and CRIM 451 or CRIM 452 or CRIM 453 Brief historical overview of criminological theory up to the 50's Deviance Labeling Typologies Most recent research in criminalistic subcultures and middle class delinquency Recent proposals for "decriminalization"

CRIM 455 Psychology of Criminal Behavior (3) Prerequisites CRIM 220 or equivalent and PSYC 331 or equivalent Biological, environmental, and personality factors which influence criminal behaviors Biophysiology and crime, stress and crime, maladjustment patterns, psychoses, personality disorders, aggression and violent crime, sex-motivated crime and sexual deviations, alcohol and drug abuse, and criminal behavior

CRIM 498 Selected Topics in Criminology (3) Topics of special interest to advanced undergraduates in criminology Such courses will be offered in response to student request and faculty interest No more than six credits may be taken by a student in selected topics

DANC — Dance

DANC 100 Modern Dance I For Non-Majors (2) Basic principles of modern dance, emphasizing fundamentals of movement

DANC 102 Rhythmic Training For Dance (2) Basic approaches to rhythmic principles related to dance

DANC 104 Modern Dance II For Non-Majors (2) Prerequisite: DANC 100 A continuation of the principles introduced in DANC 100

DANC 109 Improvisation I (2) An introduction to the process of spontaneous movement discovery involving solo and group movement experiences Repeatable to a maximum of four credits

DANC 124 Ballet I For Non-Majors (2) Barre and center work for alignment, strength, flexibility and coordination Introduction to ballet terminology

DANC 127 Ballet II For Non-Majors (2) Prerequisite DANC 124 or audition Continuation of DANC 124

DANC 138 Introduction to Ethnic Dance (2) Traditional dances and music of selected cultures Repeatable to a maximum of 4 credits only with permission of instructor

DANC 154 Jazz I For Non-Majors (2) Introduction to the jazz style in dance for the beginning student

DANC 158 Jazz I For Majors Only (2) Introduction to the jazz style in dance for the beginning student Repeatable to a maximum for 4 credits only with permission of instructor

DANC 171 Movement Integration (2) One lecture and two laboratory periods per week. Techniques for reducing tension and achieving integrated muscular control and coordination.

DANC 199 Practicum in Choreography, Production and Performance I (1-3) Prerequisite permission of instructor Choreography, production, and performance of student works, both on and off campus Repeatable to a maximum of six credits

DANC 200 Introduction to Dance (3) A study of dance as a form of communication and as an art form, a survey of the theories and styles of dance, and their relationships to other art forms

DANC 204 Modern Dance III For Non-majors (2) Prerequisite DANC 104 or audition Continuation of DANC 104

DANC 208 Choreography I (3) Prerequisite DANC 102 and DANC 109. Basic principles of dance composition space, time dynamics, and movement invention The development of critical awareness. Repeatable to a maximum of six credits only with permission of instructor

DANC 210 Dance Production (3) A survey of theatre crafts and techniques involved in dance production, including lighting, sound, set and costume design and construction, stage-management and videotaping

DANC 228 Ballet I for Majors (2) Prerequisite permission of department. Barre and center work for alignment, strength, flexibility and coordination Introduction to ballet terminology Repeatable to a maximum of four credits with permission of department

DANC 229 Ballet II for Majors (2) Prerequisite DANC 228 or audition. Continuation of DANC 228 Repeatable to a maximum of four credits with permission of department

DANC 248 Modern Dance I For Majors (3) Prerequisite: permission of department Dance movement placement, rhythm, dynamics, space and dance phrases. Repeatable to a maximum of six credits with permission of department

DANC 249 Modern Dance II for Majors (3) Prerequisite DANC 248 or audition Continuation of DANC 248. Repeatable to a maximum of six credits with permission of department

DANC 258 Jazz II (2) Prerequisite DANC 158 or audition Continuation of the principles of Jazz I Emphasis on style and execution of movement Repeatable to a maximum of four credits

DANC 266 Dance Notation I (3) Prerequisites DANC 102 and DANC 148 Movement analysis for purposes of recording dance, notation fundamentals Elementary writing of technique, reading of simple modern, ballet and ethnic studies

DANC 271 Movement Therapy (3) Two lectures and two laboratory periods per week Personal and conceptual exploration of movement to increase body awareness, self-understanding, and non-verbal communication

DANC 299 Practicum in Choreography, Production and Performance II (1-3) Prerequisite DANC 199 or permission of instructor Continuation of DANC 199 Repeatable to a maximum of six credits

DANC 302 Music Sources For Dance (3) Prerequisite DANC 102 or permission of the instructor Study of musical literature, improvisation and composition as they relate to dance Techniques of instrumental accompaniment.

DANC 305 Principles of Teaching Dance (3) Prerequisites DANC 102, 208 and 248 Theory and practice of dance instruction including methods, lesson plans and practice teaching

DANC 306 Creative Dance for Children (3) Prerequisite: DANC 305 or equivalent Communication of the essential elements of dance to children The development of movement into simple forms to serve as a symbol of creative individual expression

DANC 308 Choreography II (3) Prerequisite DANC 208 Exploration of the formal elements of choreography, theme, development, repetition, contrast, transition, continuity and structure. Repeatable to a maximum of six credits

DANC 309 Improvisation II (2) Prerequisite DANC 109 or audition Continuation of DANC 109 Repeatable to a maximum of 4 credits

DANC 310 Dance Lighting (3) Two lectures and two laboratory periods per week Prerequisite: DANC 210 Theory and pratice of stage lighting with specific reference to designing for dance

DANC 311 Dance Costuming (3) One lecture and four laboratory periods per week Prerequisite: DANC 210 Theory and practice of the design and production of costumes for dance

DANC 328 Ballet III (2) Prerequisite DANC 229 or audition. Execution of the vocabulary of ballet movement with technical accuracy Repeatable to a maximum of four credits with permission of department

DANC 329 Ballet IV (2) Prerequisite DANC 328 or audition Continuation of DANC 328 Repeatable to a maximum of four credits with permission of department

DANC 348 Modern Dance III for Majors (3) Prerequisite DANC 249 or audition The body as an instrument of expression; techniques for increasing kinesthetic sensitivity Repeatable to a maximum of six credits with permission of department.

DANC 349 Modern Dance IV for Majors (3) Prerequisite DANC 348 or audition. Continuation of DANC 348 Repeatable to a maximum of six credits with permission of department

DANC 366 Dance Notation II (3) Prerequisite: DANC 266 or equivalent Reading, writing, and performing movement scores

DANC 368 Fundamentals of Performing (1-3) Prerequisite DANC 249 or audition The development of concentration, kinesthetic awareness, spatial projection and theatrical nuances through individual coaching. For choreographers as well as performers. Repeatable to a maximum of 3 credits

DANC 370 Kinesiology for Dancers (4) A study of the biological and physical principles of movement and the effects of dancing upon the structure and function of the human body

DANC 379 Practicum in Dance (1-3) Performing experience for the student dancer who has developed a professional level of competence Repeatable to a maximum of twelve credits

DANC 388 Choreography III (3) Prerequisite DANC 308 or audition Theoretical and creative aspects of choreography for small groups Emphasis on individual projects Repeatable to a maximum of six credits

DANC 398 Directed Studies in Dance (1-6) Prerequisite permission of the department chairman Repeatable to a maximum of 6 credits

DANC 399 Practicum in Choreography, Production and Performance III (1-3) Prerequisite: DANC 299 or permission of instructor Continuation of DANC 299 Repeatable to a maximum of six credits

DANC 410 Dance Production: Design and Execution (3) Prerequisite DANC 210 or equivalent The theory and practice of advanced problems in technical theater for dance

DANC 411 Dance Management and Administration (3) Principles of dance management and administration, including organization of touring, bookings, budgets, public relations grantsmanship and audience development

DANC 430 Dance Ethnology (3) Social and cultural aspects of dance in world cultures with emphasis on non-western peoples

DANC 448 Modern Dance V for Majors (3) Prerequisite DANC 349 or audition. Complex phrases of modern dance movement with emphasis on articulation and expression. Repeatable to a maximum of six credits with permission of department

DANC 449 Modern Dance VI for Majors (3) Prerequisite: DANC 448 or audition Continuation of DANC 448 Repeatable to a maximum of six credits with permission of department

DANC 466 Laban Movement Analysis (3) Introduction to Rudolf Laban's system of qualitative movement analysis in relation to understanding personal movement style Application to dance performance, teaching, composition and research

DANC 468 Modern Repertory (3) Prerequisite DANC 349 or permission of department Form, content, music, design and performance of modern dance works Repeatable to a maximum of six credits if content differs

DANC 471 Movement Behavior (3) The social psychology of movement, reciprocity of physical and emotional behavior

DANC 479 Advanced Practicum in Dance (1-3) Advanced level performing experience for the student dancer who has developed an advanced professional level of competence. Repeatable to a maximum of six credits

DANC 482 History of Dance I (3) Prerequisite: DANC 200 The development of dance from primitive times to the Middle Ages and the relationship of dance forms to patterns of culture

DANC 483 History of Dance II (3) Prerequisite DANC 200. The development of dance from the Renaissance period to the present time and the relationship of dance forms to patterns of culture.

DANC 484 Philosophy of Dance (3) Prerequisite: DANC 200 or permission of instructor. Critical analysis of dance as a creative experience and the role of professional, educational and recreational dance in our society Selected approaches to current developments in dance

DANC 489 Special Topics in Dance (1-3) Prerequisite, permission of the department Theoretical, choreographic, pedagogic, or performance study Repeatable to a maximum of six credits if content differs

DANC 499 Practicum in Choreography, Production and Performance IV (1-6) Prerequisite permission of the department chairman. Advanced workshop in dance presentation, including performing, production and planned field experiences Repeatable to a maximum of six credits

ECON — Economics

ECON 105 Economics of Social Problems (3) An introduction to modern economic and social problems,their nature, causes, and policy implications. Closed to students who have taken two of ECON 201, 203, OR 205

ECON 201 Principles of Economics I (3) An introduction to the problems of unemployment, inflation, and economic growth. Emphasis is placed on the roles of monetary and fiscal policy in the conduct of macroeconomic policy The efficacy of wage and price controls is analyzed

ECON 203 Principles of Economics II (3) This course emphasizes the behavior of individual consumers and business firms, problems of international trade and finance, the distribution of income, policies for eliminating poverty and discrimination, the problems of environmental pollution, and the impact of different market structures upon economic activity (Students are advised to take ECON 201 before ECON 203)

ECON 205 Fundamentals of Economics (3) (Not open to students who have credit in ECON 201 Credit will be given for either 201 or 205, but not for both Students in the College of Business and Management are required to take ECON 201 and should not take 205) A one-semester introduction, for non-majors, to the principles of economics and their applications to the leading economic problems of society, including inflation, unemployment, population, poverty, urban renewal, inequality monopoly, environmental protection, international trade, imperialism, economic planning, and comparative economic systems

ECON 301 Current Issues in American Economic Policy (3) Prerequisite ECON 201 and 203, or 205 Analysis of current economic problems and public policies Inflation, unemployment, market power, government regulation, poverty and distribution of income, federal budget and tax policy, environment

ECON 305 Intermediate Macroeconomic Theory and Policy (3) Prerequisites ECON 201, 203 and MATH 220 Analysis of the determination of national income, employment, and price levels Discussion of consumption, investment, inflation, and government fiscal and monetary policy Credit will be given for only one course ECON 305 or ECON 405

ECON 306 Intermediate Microeconomic Theory (3) Prerequisites ECON 201, 203 and MATH 220 Analysis of the theories of consumer behavior and of the firm, market systems distribution theory and the roles of externalities

ECON 307 Development of Economic Ideas: Social Issues and Political Applications (3) Prerequisite ECON 201 OR 205 The development of economic ideas with particular reference to their relationship with social history, contemporary politico-economic problems, underlying philosophies, view of the human prospect, methods of analysis, and the role of values Marx, Marshall, Veblen, Schumpeter, Keynes, Samuelson, Friedman, Galbraith, Myrdal, Joan Robinson, and others

ECON 310 Evolution of Modern Capitalism in Western Europe and the United States (3) The evolution of the capitalist system from its medieval origins to the present Emphasis on dynamic forces of cumulative change in capitalism, including capital accumulation, technology, expansion of markets, the corporate form of private property in the means of production, and the relation of capitalism to war and revolution

ECON 311 American Economic Development (3) Prerequisite ECON 201 AND 203, OR 205 An analysis of the major issues in the growth and development of the American economy. Basic economic theory related to such topics as agriculture, banking, industrialization, slavery, transportation, and the Depression of the 1930's

ECON 315 Economic Development of Underdeveloped Areas (3) Prerequisites ECON 201 and 203, or 205. Analysis of the economic and social characteristics of underdeveloped areas Recent theories of economic development, obstacles to development, policies and planning for development Credit will be given for only one course ECON 315 or 416

ECON 316 Economic Development of Latin America (3) Prerequisite ECON 201 AND 203, OR 205 Institutional characteristics of Latin America and an analysis of alternative strategies and policies for development

ECON 317 Economic Development of South Asia and Sub-saharan Africa (3) Prerequisites ECON 201 AND 203, OR 205 analysis of common themes and problems of national development in Southern Asia and Sub-Saharan Africa Relations of economic patterns to society and politics The record of achievement planning and plans Population, aid and investment trade, and other topics

ECON 321 Economic Statistics (3) Prerequisite MATH 220 or equivalent Introduction to the use of statistics in economics Topics include Probability, random variables and their distributions, sampling theory, estimation, hypothesis testing, analysis of variance, regression analysis and correlation Not open to students who have taken BMGT 230 or BMGT 231

ECON 355 Economics of Crime and Law Enforcement (3) Prerequisite ECON 201 AND 203, OR 205 Economic analysis of crime and the criminal justice system, including such topics as the measurement of crime economic models of crime, cost and benefits of police and prisons, private protection, gambling and other victimless crimes, and organized crime

ECON 361 Economics of American Industries (3) Prerequisite ECON 201 AND 203, OR 205 A survey of industrial organization theory Analysis of the structure, conduct, performance, and public policies in selected American industries

ECON 370 Labor Markets, Human Resources, and Trade Unions (3) Prerequisite ECON 201 and ECON 203 or ECON 205 A survey of labor markets and the American labor movement Analysis of labor force growth and composition, problems of unemployment and labor market operations, theories of wage determination, the wage-price spiral, collective bargaining, and governmental regulation of employment and labor relations Credit will be given for only one course ECON 370 or ECON 470

ECON 374 Sex Roles in Economic Life (3) Prerequisite ECON 201 AND 203 OR 205 Discrimination against women in the labor market the division of labor in the home and the workplace by sex the child care industry women in poverty

ECON 375 Economics of Poverty and Discrimination (3) Prerequisites ECON 201 AND 203, OR 205 The causes of the persistance of low income groups, the relationship of poverty to technological change, to economic growth, and to education and training, economic results of discrimination proposed remedies for poverty and discrimination

ECON 380 Comparative Economic Systems (3) Prerequisite ECON 201 AND 203 OR 205 A comparative analysis of the theory and practice of various types of economic systems, with special attention being given to the economic systems of the United States, the Soviet Union, Mainland China Western and Eastern Europe and lesser developed countries

ECON 381 Environmental Economics (3) Prerequisite ECON 201 OR 205 or consent of instructor Application of economic theory to problems of environmental quality and management Theory of economic externalities, common property resources, alternative pollution control measures, and limits to economic growth

ECON 385 Economics of Natural Resources (3) Prerequisite: ECON 205 OR 203. Economic analysis of natural resource problems, with special emphasis on the rate of use of exhaustible resources and the problems posed for the maintenance of growth.

ECON 396 Independent Honors Study (3) Normally taken in the senior year. Prerequisites: ECON 395 and candidacy for honors in economics. Integrated reading under staff direction. Leading to the preparation of a thesis in ECON 397.

ECON 397 Honors Thesis (3) Prerequisites: ECON 396 and candidacy for honors in economics. General supervision will be provided through assembled meetings with the professor in charge of the course.

ECON 398 Topics in Economics (3) This course is designed to meet the changing interests of students and staff. Topics vary in response to those interests. This course may be repeated for credit when the subject matter changes. Students are advised to seek information about the coverage and prerequisites during the registration period. Repeatable to a maximum of six hours.

ECON 399 Individual Reading and Research For Undergraduates (3) Prerequisite: six hours of upper-division economics courses. By arrangement with individual faculty members. This course is designed for students desiring specialized instruction and guidance in subjects not covered in the course offerings. Before enrollment, the student must secure agreement from an individual faculty member to act as his supervisor. A program of reading, research and evaluation will be worked out between the student and the faculty member. Repeatable to a maximum of six credits.

ECON 402 Macroeconomic Models and Forecasting (3) Prerequisite: ECON 305 or 405. Analysis of the fluctuations in economic activity and the formulation and use of forecasting models of the economy. Illustrations of computer macro models and forecasting problems.

ECON 405 Advanced Intermediate Macroeconomic Theory (3) Prerequisites: ECON 201, 203 and MATH 220 or its equivalent. Advanced treatment of the theory of national income determination, employment, prices and growth. Models of the role of money and expectations, the impact of fiscal and monetary policies, and exchange rates. Credit will be given for only one course: ECON 305 or 405.

ECON 406 Advanced Intermediate Microeconomic Theory (3) Prerequisites: ECON 201, 203 and MATH 220 or its equivalent. Advanced treatment of the theory of prices and markets. Analysis of the theory of the household and of the firm, concepts of general equilibrium and welfare economics and principles of efficient and equitable allocations. Credit will be given for only one course: ECON 306 or 406.

ECON 407 Contemporary Economic Thought (3) Prerequisites: ECON 201, 203, and senior standing. Graduate students should take ECON 705. A survey of the development of economic thought since 1900 with special reference to Thorstein Veblen and other pre-1939 institutionalists and to post-1945 neo-institutionalist s such as J.K. Galbraith and Gunnar Myrdal.

ECON 416 Theory of Economic Development (3) Prerequisite: ECON 305 or 405. Economic theory of the developing nations; role of innovation, capital formation, resources, institutions, trade and exchange rates, and governmental policies. Credit will be given for only one course: ECON 315 or 416.

ECON 418 Economic Development of Selected Areas (3) Prerequisite: ECON 415. Institutional characteristics of a specific area are discussed and alternate strategies and policies for development are analyzed.

ECON 422 Quantitative Methods in Economics I (3) Prerequisites: ECON 201, 203, and 321 (or BMGT 230), or permission of department. Emphasizes the interaction between economic problems and the assumptions employed in statistical theory. Formulation, estimation, and testing of economic models, including single variable and multiple variable regression techniques, theory of identification, and issues relating to inference. Independent work relating the material in the course to an economic problem chosen by the student is required.

ECON 423 Quantitative Methods in Economics II (3) Prerequisite: ECON 422. Interaction between economic problems and specification and estimation of econometric models. Topics include issues of autocorrelation, heteroscedasticity, functional form, simultaneous equation models, and qualitative choice models.

ECON 424 Computer Methods in Economics (3) Prerequisites: ECON 201, 203 and ECON 321 (or BMGT 230). Computer modelling of economic problems, including household and firm behavior, macroeconomic relationships, statistical models of economy, and simulation models.

ECON 425 Mathematical Economics (3) Prerequisites: ECON 401 AND 403 and one year of college mathematics. A course designed to enable economics majors to understand the simpler aspects of mathematical economics. Those parts of the calculus and algebra required for economic analysis will be presented.

ECON 430 Money and Banking (3) Prerequisite: ECON 201 and ECON 203. The structure of financial institutions and their role in the provision of money and near money. Analysis of the Federal Reserve System, the techniques of central banks, and the control of supply of financial assets in stabilization policy. Relationship of money and credit to economic activity and the price level. Credit will be given for only one course: ECON 430 or ECON 431.

ECON 431 Theory of Money, Prices and Economic Activity (3) Prerequisite: ECON 401 or ECON 405. Monetary theory and the role of money, financial institutions and interest rates in macro models. Analysis of money demand and supply and of the Monetarist-Keynesia n debate as they affect inflation and stabilization policy. Credit will be given for only one course: ECON 430 or ECON 431.

ECON 440 International Economics (3) Prerequisite: ECON 201 and ECON 203. A description of international trade and the analysis of international transactions, exchange rates, and balance of payments. Analysis of policies of protection, devaluation, and exchange rate stabilization and their consequences. Credit will be given for only one course: ECON 440 or ECON 441.

ECON 441 Theory of International Economics (3) Prerequisite: ECON 401 or ECON 405, and ECON 403 or ECON 406. Theoretical treatment of international trade and international finance. Includes Ricardian and Heckscher-Ohlin theories of comparative advantage, analysis of tariffs and other trade barriers, international factor mobility, balance of payments adjustments, exchange rate determination, and fiscal and monetary policy in an open economy. Credit will be given for only one course: ECON 440 or ECON 441.

ECON 450 Introduction to Public Sector Economics (3) Prerequisite: ECON 201 and ECON 203, or ECON 205. The role of federal, state, and local governments in meeting public wants. Analysis of theories of taxation, public expenditures, government budgeting, benefit-cost analysis and income redistribution, and their policy applications. Credit will be given for only one course: ECON 450 or ECON 454.

ECON 451 Public Choice and Public Policy (3) Prerequisite: ECON 201, 203, OR 205. Analysis of collective decision making, economic models of government, program budgeting, and policy implementation; emphasis on models of public choice and institutions which affect decision making.

ECON 454 Theory of Public Finance and Fiscal Federalism (3) Prerequisite: ECON 403 or ECON 406. Study of welfare economics and the theory of public goods, taxation, public expenditures, benefit-cost analysis, and state and local finance. Applications of theory to current policy issues. Credit will be given for only one course: ECON 450 or ECON 454.

ECON 460 Industrial Organization (3) Prerequisite: ECON 403 and 406. Changing structure of the American economy, price policies in different industrial classifications of monopoly and competition in relation to problems of public policy.

ECON 465 Health Care Economics (3) Prerequisite: ECON 203 or ECON 205. Analysis of the health care, the organization of its delivery and financing. Access to care; the role of insurance, regulation of hospitals, physicians, and the drug industry, role of technology, and limits on health care spending.

ECON 470 Theory of Labor Economics (3) Prerequisite: ECON 403 or ECON 406. An analytical treatment of theories of labor markets. The theory of human capital and allocation of time in household labor supply models, marginal productivity theory of labor demand, market structure and the efficiency of labor markets, information theory and screening, discrimination, distribution of income, and unemployment. Credit will be given for only one course: ECON 370 or ECON 470.

ECON 471 Current Problems in Labor Economics (3) Prerequisite: ECON 470. For students who wish to pursue, in depth, selected topics in the labor field. Issues and topics selected for detailed examination may include manpower training and development, unemployment compensation and social security, race and sex discrimination in employment, wage theory, productivity analysis, the problems of collective bargaining in public employment, wage-price controls and incomes policy.

ECON 482 Economics of the Soviet Union (3) Prerequisite: ECON 201 AND 203, OR 205. An analysis of the organization, operating principles and performance of the Soviet economy with attention to the historical and ideological background, planning, resources, industry, agriculture, domestic and foreign trade, finance, labor, and the structure and growth of national income.

ECON 484 The Economy of China (3) Prerequisite: ECON 201 AND 203, OR 205. Policies and performances of the Chinese economy since 1949. Will begin with a survey of modern China's economic history. Emphasizes the strategies and institutional innovations that the Chinese have adopted to overcome the problems of economic development. Some economic controversies raised during the "Cultural Revolution" will be covered in review of the problems and prospects of the present Chinese economy.

ECON 486 The Economics of National Planning (3) Prerequisite: ECON 201 AND 203, OR 205. An analysis of the principles and practice of economic planning with special reference to the planning problems of West European countries and the United States.

ECON 490 Survey of Urban Economic Problems and Policies (3) Prerequisites: ECON 201 AND 203, OR 205. An introduction to the study of urban economics through the examination of current policy issues. Topics may include suburbanization of jobs and residences, housing and urban renewal, urban transportation, development of new towns, ghetto economic development, problems in services such as education and police.

ECON 491 Economics and Control of Urban Growth (3) Prerequisite: ECON 490. An analysis of metropolitan development processes, the consequences of alternative growth patterns, and the evaluation of policies to control growth.

ECON 492 Economics of Location and Regional Growth (3) Prerequisite: ECON 403, or consent of instructor. Study of the theories, problems, and policies of regional economic development and the location of economic activity for both rural and metropolitan regions. Methods of regional analysis.

EDCI — Curriculum and Instruction

EDCI 280 School Service Semester (3) Development of conceptual understanding of the teaching-learning process. Seminar to coordinate on-and off-campus experiences. One hour each week on campus with an arranged six hours each week in schools.

EDCI 288 Special Topics in Teacher Education (1-3) Prerequisite: permission of department. Repeatable to 6 credits if content differs.

EDCI 298 Special Problems in Teacher Education (1-6) Prerequisite: permission of department. Repeatable to 6 credits if content differs.

EDCI 300 Curriculum and Instruction in Art Education (3) Prerequisite: admission to Teacher Education Program. Objectives, selection and organization of subject matter, appropriate methods, lesson plans, textbooks and other instructional materials, measurement, and other topics pertinent to art education.

EDCI 301 Teaching Art in the Elementary School (3) Limited to non-art education majors. Art methods and materials for elementary schools. Includes laboratory experiences with materials appropriate for elementary schools. Emphasis on emerging areas of art education for the elementary classroom teacher.

EDCI 313 Creative Activities and Materials for the Young Child (3) Prerequisite: EDCI 280. Corequisites: EDHD 300; and MUED 450; and EDCI 318, and EDCI 314. Techniques and resources for art, music, play and creative dramatics.

EDCI 314 Teaching Language, Reading, Drama and Literature with Young Children (3) Prerequisite: EDCI 280. Corequisites: EDHD 300, and MUED 450; and EDCI 318; and EDCI 313. Introduction to the teaching of reading in the context of the language arts; beginning reading instruction and utilization of literature, drama, and writing.

EDCI 315 The Young Child in the Social Environment (3) Prerequisites: EDCI 313, and EDCI 314. Corequisites: EDCI 316, and EDCI 317; and EDCI 318. The child ± s understanding of people, social roles, society and various cultures; communicative skills and ability to develop satisfying relationships with peers and adults. Related techniques, materials and resources included.

EDCI 316 The Teaching of Reading: Early Childhood (3) Prerequisites: EDCI 313, and EDCI 314. Corequisites: EDCI 315, and EDCI 317, and EDCI 318. The fundamentals of developmental reading instruction, including reading readiness, use of experience records, procedures in using basal readers, the improvement of comprehension, teaching reading in all areas of the curriculum, uses of children ± s literature, the program in word analysis, and diagnostic techniques.

EDCI 317 The Young Child and the Physical Environment (3) Prerequisites: EDCI 313, and EDCI 314. Corequisites: EDCI 315, and EDCI 316, and EDCI 318. Teaching skills and background knowledge important in guiding the child to learn about the physical environment. The skills of quantification, observation, inference, space-time relationships, and classification.

EDCI 318 Professional Development Seminar in Early Childhood Education (1-2) Repeatable to 3 credits Affective and integrative functions of teaching young children, planning daily programs; organizing the learning environment, developing the curriculum, clarifying values, guiding behavior, diagnosing and evaluating, and working with parents and other adults

EDCI 320 Curriculum and Instruction in Secondary Education: Social Studies/ History (3) Prerequisites: EDHD 300, and EDCI 390 Objectives, selection and organization of subject matter, appropriate methods, lesson plans, textbooks and other instructional materials, measurement and topics pertinent to social studies education Includes emphasis on multi-cultural education

EDCI 321 Curriculum and Instruction in Secondary Education: Social Studies/ Geography (3) Prerequisites EDHD 300, and EDCI 390 Objectives, selection and organization of subject matter, appropriate methods, lesson plans, textbooks and other instructional materials, measurement, and topics pertinent to geography education

EDCI 322 Curriculum and Instruction in Elementary Education: Social Studies (3) Prerequisites: EDCI 397 and EDHD 300 Curriculum, organization and methods of teaching, evaluation of materials, and utilization of environmental resources Emphasis on multicultural education Includes laboratory/field experiences

EDCI 330 Curriculum and Instruction in Secondary Education: Foreign Language (3) Prerequisites EDHD 300, and EDCI 390 Objectives, selection and organization of subject matter, appropriate methods, lessen plans, textbooks, and other instructional materials, measurement, and other topics pertinent to foreign language education

EDCI 340 Curriculum and Instruction in Secondary Education: English/ Speech/ Theatre (3) Prerequisites EDHD 300, and EDCI 390 Objectives, selection, and organization of subject matter, appropriate methods, lesson plans, textbooks and other instructional materials, measurement, and other topics

EDCI 342 Curriculum and Instruction in Elementary Education: Language Arts (3) Prerequisites: EDCI 397, and EDHD 300 Listening, oral communication, functional writing, creative writing, spelling, handwriting, and creative expression Includes laboratory/field experiences

EDCI 350 Curriculum and Instruction in Secondary Education: Mathematics (3) Prerequisites EDHD 300, and EDCI 390 Six semester hours of 400-level mathematics courses required Objectives, selection and organization of subject matter, appropriate methods, lesson plans, textbooks and other instructional materials, measurement and topics For pre-service mathematics teachers

EDCI 352 Curriculum and Instruction in Elementary Education: Mathematics (3) Prerequisites MATH 210, and MATH 211, and EDCI 397, and EDHD 300 Materials and procedures to help children sense arithmetical meanings and relationships Development of an understanding of the number system and arithmetical processes Includes laboratory/field experiences

EDCI 362 Curriculum and Instruction in Elementary Education: Reading (3) Prerequisites EDCI 397, and EDHD 300 Fundamentals of developmental reading instruction, including reading readiness, use of experience stories, procedures in using basal readers, the improvement of comprehension, word analysis, and procedures for determining individual needs Includes laboratory/field experiences

EDCI 370 Curriculum and Instruction in Secondary Education: Science (3) Prerequisites: EDHD 300, and EDCI 390 For pre-service science teachers Preparing objectives, planning lessons, selecting and organizing for classroom and laboratory instruction, determining appropriate teaching methods, selecting textbooks and other instructional materials, and measuring and evaluating student achievement Includes laboratory/field experiences

EDCI 372 Curriculum and Instruction in Elementary Education: Science (3) Prerequisites: EDCI 397, and EDHD 300 Objectives, methods, materials and activities for teaching science in the elementary school, emphasis on teaching strategies which help children learn the processes and concepts of science Includes laboratory/field experiences

EDCI 380 Curriculum and Instruction: Elementary (3) Focuses on developmental needs at various age levels, with emphasis upon the activities, materials and methods by which educational objectives are attained

EDCI 381 Schools and Children (3) Role examination of parents and other community members as consumers and participants in schools Not open for credit to students in teacher preparation programs

EDCI 385 Computers for Teachers (3) Prerequisite: permission of department Admission to Teacher Education Program required A first-level survey of instructional uses of computers, software, and related technology for preservice teachers

EDCI 390 Principles and Methods of Secondary Education (3) Pre- or corequisite: EDHD 300, or permission of department Principles and methods of teaching in junior and senior high schools Instructional problems common to all of the subject fields, considered in relation to the needs and interests of youth, social problems and the central values of society

EDCI 397 Principles and Methods of Teaching in Elementary Schools (3) Prerequisite: EDCI 280 Corequisite: EDHD 300 Teaching strategies, classroom interactive techniques, and procedures for planning and evaluating instruction in elementary schools Emphasis on principles of effective instruction, classroom management, and adaptation of instruction for various student populations

EDCI 401 Student Teaching in Elementary School: Art (4-8) Prerequisite: EDCI 300 Fulfills elementary teaching requirements in K-12 art education program

EDCI 402 Student Teaching in Secondary Schools: Art (2-8) Prerequisite: EDCI 300

EDCI 403 Teaching of Art Criticism in Public Schools (3) Introduction to theories of art criticism Trips to galleries and museums Open to fine arts majors and students from other disciplines

EDCI 406 Practicum in Art Education: Two-Dimensional (3) Prerequisite: permission of department Theory and practical experience in two-dimensional design in various art media, development of teaching procedures and presentation of materials in school settings

EDCI 407 Practicum in Art Education: Three-Dimensional (3) Prerequisite: permission of department A lecture-studio course to develop skills, material resources, and educational strategies for three-dimensional projects in school settings

EDCI 410 The Child and the Curriculum: Early Childhood (3) Relationship of the nursery school curriculum to child growth and development Recent trends in curriculum organization; the effect of environment on learning; readiness to learn, and adapting curriculum content and methods to maturity levels of children Primarily for in-service teachers, nursery school through grade

EDCI 411 Student Teaching: Preschool (4) For EDCI majors only

EDCI 412 Student Teaching: Kindergarten (4) For EDCI majors only

EDCI 413 Student Teaching: Primary Grades (8) For EDCI majors only

EDCI 416 Mainstreaming in Early Childhood Educational Settings (3) Theoretical bases and applied practices for integrating handicapped children into regular early childhood programs

EDCI 420 Student Teaching Seminar in Secondary Education: Social Studies (3) Corequisite: EDCI 421 or EDCI 422 An analysis of teaching theory, strategies and techniques in the student teaching experience

EDCI 421 Student Teaching in Secondary Schools: Social Studies/History (12) Prerequisite: EDCI 320 Corequisite: EDCI 420

EDCI 422 Student Teaching in Secondary Schools: Social Studies/Geography (12) Prerequisite: EDCI 321 Corequisite: EDCI 420

EDCI 423 Social Studies in Early Childhood Education (3) Curriculum, organization and methods of teaching, evaluation of materials and utilization of environmental resources Emphasis on multicultural education Primarily for in-service teachers, nursery school through grade 3

EDCI 424 Social Studies in the Elementary School (3) Curriculum, organization and methods of teaching evaluation of materials and utilization of environmental resources Emphasis on multicultural education Primarily for in-service teachers, grades 1-6

EDCI 42S Social Studies and Multicultural Education (3) Seminar in general social science principles applicable to multicultural education Cultural experiences arranged for each participant

EDCI 426 Methods of Teaching Social Studies in Secondary Schools (3) Prerequisites: EDHD 300, and EDCI 390 Objectives, selection and organization of subject matter, appropriate methods, lesson plans, textbooks and other instructional materials, measurement and topics pertinent to social studies education Includes emphasis on multicultural education For in-service teachers

EDCI 430 Student Teaching Seminar in Secondary Education: Foreign Language (3) Prerequisite: EDCI 330 Corequisite: EDCI 431 An analysis of teaching theory strategies and techniques in the student teaching experience

EDCI 431 Student Teaching in Secondary Schools: Foreign Language (12) Prerequisite: EDCI 330 Corequisite: EDCI 430

EDCI 432 Foreign Language Methods in the Elementary School (3) Prerequisite: permission of department Methods and techniques for developmental approach to the teaching of modern foreign languages in elementary schools Development of oral-aural skills in language development

EDCI 433 Introduction to Foreign Language Methods (3) Prerequisites: EDHD 300, and EDCI 390, or permission of department Objectives, selection and organization of subject matter, appropriate methods, lesson plans, textbooks and other instructional materials, measurement and topics pertinent to foreign language education For in-service teachers

EDCI 434 Methods of Teaching English to Speakers of Other Languages (3) Methods for teaching listening speaking, reading and writing techniques and a review of research findings

EDCI 435 Teaching Reading in a Second Language (3) Prerequisite: permission of department Analysis of selected theories and practices in first language reading applied to second language teaching/learning diagnostic and prescriptive techniques and analysis of the student's cultural background as a factor in evaluating reading achievement in the second language

EDCI 436 Teaching for Multicultural Understanding (3) Prerequisite: permission of department The techniques and content for teaching culture in foreign language classes and English as a Second Language (ESL) classes Research and evaluation of selected aspects of a culture as basis for creating teaching materials

EDCI 437 Bilingual-Bicultural Education (3) Prerequisite: permission of department Analysis of bilingual-bicultural education in the U S and abroad with emphasis on TESOL Methods of teaching goals, instructional materials and mainstreaming of bilingual students

EDCI 438 Field Experience in TESOL (3) Prerequisites: EDCI 434 or equivalent, and permission of department Systematic observations, tutoring and teaching in a TESOL field setting

EDCI 440 Student Teaching Seminar in Secondary Education: English, Speech, Theatre (1) Prerequisite: EDCI 340 Corequisite: EDCI 441 An analysis of teaching theory, strategies and techniques in relation to the student teaching experience

EDCI 441 Student Teaching in Secondary Schools: English (6-12) Prerequisite: EDCI 340 or EDCI 442 or EDCI 448 Corequisite: EDCI 440

EDCI 442 Student Teaching in Secondary Schools: Speech (6-12) Prerequisite: EDCI 340 Corequisite: EDCI 440

EDCI 443 Literature for Children and Youth (3) For education and pre-education majors only Analysis of literary materials for children and youth Timeless and ageless books, and outstanding examples of contemporary publishing Evaluation of the contributions of individual authors, illustrators and children's book awards

EDCI 444 Language Arts in Early Childhood Education (3) Teaching of spelling handwriting oral and written expression and creative expression Primarily for in-service teachers, nursery school through grade 3

EDCI 445 Language Arts in the Elementary School (3) Teaching of spelling, handwriting oral and written expression and creative expression Primarily for in-service teachers, grades 1-6

EDCI 446 Methods of Teaching English, Speech, Theatre in Secondary Schools (3) Prerequisites EDHD 300, and EDCI 390 or permission of department Objectives, selection and organization of subject matter appropriate methods, lesson plans textbooks and other instructional materials, measurement and topics pertinent to English speech and drama education For in-service teachers

EDCI 447 Field Experience in English, Speech, Theatre Teaching (1) Corequisite: EDCI 340 Practical experience as an aide to a regular English, Speech or Drama teacher assigned responsibilities and participation in a variety of teaching/learning activities

EDCI 448 Student Teaching in Secondary Schools: Theatre (6-12) Prerequisite: EDCI 340 Persons student teaching in theatre only should register for 12 credits Persons in the Theatre and English Education Program should register for 6 credits of EDCI 441 and 6 credits of EDCI 448

EDCI 450 Student Teaching Seminar in Secondary Education: Mathematics (3) Corequisite: EDCI 451 An analysis of teaching theory strategies and techniques in the student teaching experience

EDCI 451 Student Teaching in Secondary Schools: Mathematics (12) Prerequisite: EDCI 350

EDCI 452 Mathematics in Early Childhood Education (3) Prerequisite: MATH 210 or equivalent Emphasis on materials and procedures which help pupils sense arithmetic meanings and relationships Primarily for in service teachers, nursery school through grade 3

EDCI 453 Mathematics in the Elementary School (3) Prerequisite: MATH 210 or equivalent. Emphasis on materials and procedures which help pupils sense arithmetic meanings and relationships. Primarily for in-service teachers, grades 1-6.

EDCI 455 Methods of Teaching Mathematics in Secondary Schools (3) Prerequisites: EDHD 300, and EDCI 390; and 2 semesters of calculus. Objectives, selection and organization of subject matter, appropriate methods, lesson plans, textbooks and other instructional materials, measurement, and topics pertinent to mathematics education.

EDCI 456 Teaching Mathematics to the Educationally Handicapped (3) Prerequisites: [EDSP 331, and EDSP 332, and EDSP 333, and EDSP 443, and MATH 210] or permission of department. Development of skills in diagnosing and identifying learning disabilities in mathematics and planning for individualized instruction. Clinic participation required.

EDCI 457 Teaching Secondary Students with Difficulties in Learning Mathematics (3) Corequisite: EDCI 390 or permission of department. Diagnosis, prescription and implementation of instruction for less able secondary school mathematics students. Participation in a clinical experience.

EDCI 461 Reading in Early Childhood Education (3) Fundamentals of developmental reading instruction, including reading readiness, use of experience stories, procedures in using basal readers, the improvement of comprehension, word analysis, and procedures for determining individual needs. Primarily for in-service teachers, nursery school through grade 3.

EDCI 462 Reading in the Elementary School (3) Fundamentals of developmental reading instruction, including reading readiness, use of experience stories, procedures in using basal readers, the improvement of comprehension, word analysis, and procedures for determining individual needs. Primarily for in-service teachers, grades 1-8.

EDCI 463 The Teaching of Reading in the Secondary School (3) The fundamentals of secondary reading instruction, including emphasis on content reading instruction.

EDCI 464 Clinical Practices in Reading Diagnosis and Instruction (3) Prerequisite: EDCI 362 or EDCI 463. A laboratory course in which each student has one or more pupils for analysis and instruction. At least one class meeting per week to diagnose individual cases and to plan instruction.

EDCI 466 Literature for Adolescents (3) Reading and analysis of fiction and nonfiction, methods for critically assessing quality and appeal, current theory and methods of instruction, research on response to literature, curriculum design and selection of books.

EDCI 467 Teaching Writing (3) Sources and procedures for developing curriculum objectives and materials for teaching written composition; prewriting, composing, and revision procedures, contemporary directions in rhetorical theory, survey of research on composition instruction.

EDCI 471 Student Teaching in Secondary Schools: Science (12) Prerequisite: EDCI 352.

EDCI 472 Methods of Teaching Science in Secondary Schools (3) Prerequisites: EDHD 300, and EDCI 390; and permission of department. Methods for classroom and laboratory instruction, determining appropriate teaching methods, selecting instructional materials, evaluating student achievement. Includes lab and field experience. For in-service teachers.

EDCI 473 Environmental Education (3) Two hours of lecture and three hours of laboratory per week. An interdisciplinary course covering the literature, techniques and strategies of environmental education.

EDCI 474 Science in Early Childhood Education (3) Objectives, methods, materials and activities for teaching science in the elementary school. Primarily for in-service teachers, nursery school through grade 3.

EDCI 475 Science in the Elementary School (3) Objectives, methods, materials, and activities for teaching science in the elementary school. Primarily for in-service teachers, grades 1-6.

EDCI 476 Teaching Ecology and Natural History (3) An introduction to the teaching of natural history in the classroom and in the field. Ecological principles; resources and instructional materials, curricular materials. Primarily for teachers, park naturalists, and outdoor educators.

EDCI 480 The Child and the Curriculum: Elementary (3) Relationship of the school curriculum, grades 1-6, to child growth and development. Recent trends in curriculum organization, the effect of environment on learning, readiness to learn, and adapting curriculum content and methods to maturity levels of children. Primarily for in-service teachers, grades 1-6.

EDCI 481 Student Teaching: Elementary (12) For EDCI majors only.

EDCI 484 Student Teaching in Elementary School: Music (4-6) For EDCI majors only. Fulfills elementary teaching requirements in K-12 music education programs.

EDCI 485 Student Teaching in Elementary School: Physical Education (4-8) For EDCI majors only. Fulfills elementary teaching requirements in K-12 physical education programs.

EDCI 487 Introduction to Computers in Instructional Settings (3) Prerequisite: six hours of education or permission of department. A first-level survey of instructional uses of computers, software, and related technology especially for in-service teachers.

EDCI 488 Selected Topics in Teacher Education (1-3) Prerequisite: EDCI major or permission of department. Repeatable to 6 credits if content differs.

EDCI 489 Field Experiences in Education (1-4) Prerequisite: permission of department. Corequisite: EDCI 497. Repeatable to 4 credits.

EDCI 491 Student Teaching in Secondary Schools: Health (12) For EDCI majors only.

EDCI 494 Student Teaching in Secondary Schools: Music (2-8) For EDCI majors only.

EDCI 495 Student Teaching in Secondary Schools: Physical Education (2-8) For EDCI majors only.

EDCI 497 The Study of Teaching (3) Prerequisite: EDCI 481. Corequisite: EDCI 489. Identification and examination of learner and teacher outcome variables related to teaching systems, methods, and processes. Methods of conducting classroom research.

EDCI 498 Special Problems in Teacher Education (1-6) Prerequisite: permission of department. For EDCI majors only. Repeatable to 6 credits. Individual study of approved problems.

EDCI 499 Workshops, Clinics, and Institutes (1-6) Repeatable to 6 credits. The following types of educational enterprise may be scheduled under this course heading: workshops conducted by the College of Education (or developed cooperatively with other colleges and universities) and not otherwise covered in the present course listing; clinical experiences in pupil testing centers, reading clinics, speech therapy laboratories, and special education centers; institutes developed around specific topics or problems and intended for designated groups such as school superintendents, principals and supervisors.

EDCP — Education Counseling and Personnel Services

EDCP 108 College and Career Advancement: Concepts and Skills (1) Repeatable to 3 credits if content differs. Knowledge and skills designed to enhance college as a learning experience or preparation for life.

EDCP 310 Peer Counseling Theory and Skills (3) The theories and skills of peer helping relationships. Counseling theories and skills at a level appropriate for students seeking basic level training for use in peer counseling settings.

EDCP 325 Substance Use and Abuse in American Society (3) Incidence, etiology, effects and management of substance use and abuse from perspective of the individual, the family, and society.

EDCP 410 Introduction to Counseling and Personnel Services (3) Overview of counselor functions and skills that lead to effective helping.

EDCP 411 Principles of Mental Health (3) The practical application of the principles of mental hygiene to classroom problems.

EDCP 413 Behavior Modification (3) Knowledge and techniques of intervention in a variety of social situations, including contingency contracting and time out will be acquired.

EDCP 416 Theories of Counseling (3) An overview and comparison of the major theories of counseling, including an appraisal of their utility and empirical support.

EDCP 417 Group Dynamics and Leadership (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: permission of department. The nature and property of groups, interaction analysis, developmental phases, leadership dynamics and styles, roles of members and interpersonal communications. Laboratory involves experimental based learning.

EDCP 420 Education and Racism (3) Strategy development for counselors and educators to deal with problems of racism.

EDCP 460 Introduction to Rehabilitation Counseling (3) Survey of principles and practices involved in the vocational rehabilitation of persons with disabilities.

EDCP 461 Psycho-Social Aspects of Disability (3) Theory and research concerning disability, with emphasis on crisis theory, loss and mourning, handicapped as a deviant group, sexuality and functional loss, attitude formation, dying process and coping. Implications for counseling and the rehabilitation process.

EDCP 462 The Disabled Person in American Society (3) Critical examination of the history of legislation and analysis of current policies toward severely physically and mentally disabled persons.

EDCP 470 Introduction to Student Personnel (3) Prerequisite: permission of department. A systematic analysis of research and theoretical literature on a variety of major problems in the organization and administration of student personnel services in higher education. Included will be discussion of such topics as the student personnel philosophy in education, counseling services, discipline, housing, student activities, financial aid, health, remedial services, etc.

EDCP 489 Field Experiences in Counseling and Personnel Services (1-4) Prerequisite: permission of department. Planned field experience in education-related activities. Credit not to be granted for experiences accrued prior to registration.

EDCP 498 Special Problems in Counseling and Personnel Services (1-3) Prerequisite: permission of department. Available only to major students who have formal plans for individual study of approved problems.

EDCP 499 Workshops, Clinics, Institutes (1-6) Repeatable to 6 credits. The following type of educational enterprise may be scheduled under this course heading: workshops conducted by the Department of Counseling and Personnel Services (or developed cooperatively with other departments, colleges and universities) and not otherwise covered in the present course listing; clinical experiences in counseling and testing centers, reading clinics, speech therapy laboratories, and special education centers; institutes developed around specific topics or problems and intended for designated groups.

EDHD — Education, Human Development

EDHD 300 Human Development and Learning (6) Open only to students admitted to teacher education programs. Major concepts and theories of human development and learning and their implications for the educational process. One half day a week in school to observe student behavior, participate in classroom activities, and attend seminars on school topics. (Separate sections for early childhood, elementary, and secondary teacher candidates.)

EDHD 306 Study of Human Behavior (3) The scientific principles of human behavior, development, and adjustment. Field work: observation, recording, and analysis of the behavior of an individual. Does not satisfy requirements of professional teacher education program.

EDHD 319 Selected Topics in Human Development (3) Repeatable to 6 credits if content differs. Selected topics in human development in relation to contemporary culture.

EDHD 320 Human Development Through the Lifespan (3) Central concepts related to parameters of human development: individual and social, which arise throughout the various stages of the lifespan. Continuity and change within the developing individual.

EDHD 330 Human Development and Societal Institutions (3) Development of the individual in the context of relationships with formal and informal institutions of society. An examination of various aspects of development, from the broad perspective of the social sciences.

EDHD 340 Human Development Aspects of the Helping Relationship (3) Development of skills and theoretical knowledge relevant to the human services. Relating, communicating, and problem-solving with others. In-class training activities and field experiences for acquiring interpersonal competence.

EDHD 350 Human Development Factors in Personal Development (3) Personality dynamics including self-study and group experiences which contribute to individual development and insight. Emphasis on factors which enhance optimal personal growth.

EDHD 400 Introduction to Gerontology (3) Multidisciplinary survey of the processes of aging. Physiological changes, cultural forces, and self-processes that bear on quality of life in later years. Field study of programs, institutions for elderly, individual elders, their families and care providers.

EDHD 411 Child Growth and Development (3) Theoretical approaches to and empirical studies of physical, psychological and social development from conception to puberty. Implications for home, school and community.

EDHD 413 Adolescent Development (3) Adolescent development, including special problems encountered in contemporary culture. Observational component and individual case study. Does not satisfy requirement for professional teacher education program.

EDHD 416 Scientific Concepts in Human Development (3) Guided reading and observation of students through the school year. Impact of family, school, society, and peer group on individual. Analysis of field data in terms of behavioral patterns.

EDHD 417 Laboratory in Behavior Analysis (3) Prerequisite EDHD 416 Continuation of analysis of field observations emphasis on cognitive processes, motivation, self-concept, attitudes and values

EDHD 419 Human Development and Learning in School Settings (3) Prerequisite permission of department Repeatable to 6 credits if content differs Advanced study of human development and learning in different phases of school program over a period of time

EDHD 420 Cognitive Development and Learning (3) Prerequisite EDHD 300 or EDHD 320 or EDHD 411 or PSYC 355 or PSYC 341 or permission of department Current developmental theories of cognitive processes such as language, memory, and intelligence and how differences in cognitive level (infancy through adolescence) mediate learning of educational subject matters

EDHD 445 Guidance of Young Children (3) Prerequisite PSYC 100 or EDHD 306 or permission of department Practical aspects for helping and working with children, drawing on research, clinical studies, and observation Implications for day care and other public issues

EDHD 460 Educational Psychology (3) Prerequisite PSYC 100 or EDHD 306 or permission of department Application of psychology to learning processes and theories Individual differences, measurement, motivation, emotions, intelligence, attitudes, problem solving, thinking and communicating in educational settings (May not be substituted for EDHD 300 by students in professional teacher education programs)

EDHD 489 Field Experiences in Education (1-4) Prerequisite permission of department Repeatable to 4 credits Planned field experience in education-related activities Credit not to be granted for experiences accrued prior to registration

EDHD 498 Special Problems in Education (1-3) Prerequisite permission of department Available only to students who have definite plans for individual study of approved problems

EDHD 499 Workshops, Clinics, and Institutes (1-6) Repeatable to 6 credits The following type of educational enterprise may be scheduled under this course heading workshops conducted by the College of Education (or developed cooperatively with other colleges and universities) and not otherwise covered in the present course listing clinical experiences in pupil-testing centers, reading clinics, speech therapy laboratories, and special education centers, institutes developed around specific topics or problems and intended for designated groups such as school superintendents, principals and supervisors

EDIT — Industrial, Technological and Occupational Education

EDIT 101 Mechanical Drawing I (2) Four hours of laboratory per week An introduction to orthographic multi-view and isometric projection The visualization and making of a multi-view drawing Auxiliary views, sectional views, dimensioning, conventional representation and single stroke letters

EDIT 102 Fundamentals of Woodworking (3) Two hours of lecture and four hours of laboratory per week An orientation into the woodworking industry materials, products and processes provides skill development in the care and use of hand and power tools

EDIT 106 Teaching Creative Construction Activities I (3) Two hours of lecture and four hours of laboratory per week Introduction to ceramics, graphics, metals and woods as construction activity materials utilized by multi-age groups in a variety of settings

EDIT 110 Teaching Creative Construction Activities II (3) Two hours of lecture and four hours of laboratory per week Prerequisite EDIT 106 A continuation of EDIT 106 Study of basic phenomena of industry particularly those which apply to the manufacture of common products, housing transportation and communication

EDIT 112 Technical Calculations (3) Developing an understanding and applied knowledge of the mathematical concepts related to the various aspects of industrial education algebra, geometry trigonometry and general mathematics

EDIT 114 Principles of Typewriting (2) Four hours of laboratory per week The attainment of the ability to operate the typewriter and keyboard continuously with reasonable speed and accuracy by the "touch"

EDIT 115 Intermediate Typewriting (2) Four hours of laboratory per week Prerequisite minimum grade of C in EDIT 114 or permission of department Theory and practice for improving speed and accuracy and an introduction to office production typewriting

EDIT 116 Principles of Shorthand I (3) Six hours of laboratory per week Prerequisite EDIT 114 Development of the theory and principles of shorthand

EDIT 117 Principles of Shorthand II (3) Six hours of laboratory per week Theory and practice for improving mastery of dictation and transcription

EDIT 121 Mechanical Drawing II (2) Four hours of laboratory per week Prerequisite EDIT 101 Working drawings, machine design, pattern layouts, tracing and reproduction, detailings and assemblies

EDIT 127 Fundamentals of Electricity Electronics (3) Two hours of lecture and four hours of laboratory per week Introduction to electricity-electronics with emphasis on electrical circuits and wiring, the measurement of electrical energy the theory of motors and generators and an introduction to transistors and power supplies

EDIT 160 Design Illustrating I (3) Two hours of lecture and four hours of laboratory per week Intended for advertising, interior, landscape design and horticulture majors The use of instruments, equipment, and materials, lettering, line technique, geometric construction; and projection theory Pictorial representation, particularly isometric, oblique, and one and two point perspective

EDIT 202 Machine Woodworking (3) Two hours of lecture and four hours of laboratory per week Prerequisite EDIT 102 or equivalent The development of comprehensive knowledge of machine woodworking with emphasis on mass production practices, speciality cuts, laminating maintenance and consumer understanding

EDIT 207 Bases For Curriculum Decision in Home Economics (3) Exploration of decisions about priorities in home economics curricula based on the needs of society, the individual and the structure of the home economics program The roles of the secondary home economics teacher Includes observations in area schools

EDIT 210 Foundry (1) Two hours of laboratory per week Bench and floor molding and elementary core making Theory and principles covering foundry materials, tools and appliances

EDIT 214 Office Typewriting Problems (2) Four hours of laboratory per week Prerequisite minimum grade of C in EDIT 115 Development of a higher degree of accuracy and speed The advanced techniques of typewriting with a special emphasis on production

EDIT 215 Survey of Office Machines (3) Development of skill through actual use and demonstration of various types of office business machines, their capacities and special functions

EDIT 216 Advanced Shorthand and Transcription (3) Six hours of laboratory per week Prerequisite minimum grade of C in EDIT 115 Emphasis on vocabulary development and new matter dictation for sustained speed at the highest level possible under varying conditions Transcription under timed conditions with emphasis on production involving quantity and quality

EDIT 223 Arc and Gas Welding (1) Two hours of laboratory per week The development of functional knowledge of the principles and use of electric and acetylene welding Practical work in the construction of various projects using welded joints The use and care of equipment, types of joints, methods, importance of processes in industry and safety consideration

EDIT 224 Organized and Supervised Work Experiences I (3) A work experience for students enrolled in the industrial technology program Opportunities for first-hand experiences with business and industry Students are responsible for obtaining their own employment, with the coordinator advising them about job opportunities with optimum learning value The nature of the work experience desired is outlined at the outset of employment and then evaluations made by the student and the coordinator are based upon the planned experiences The minimum time is 240 work hours The work experience must be served through continuous employment in a single establishment

EDIT 226 Fundamental Metalworking Processes (3) Two hours of lecture and four hours of laboratory per week Introduction to the technology of metalworking Experience operating metals laboratory equipment including an intensive study of the processes of manufacture

EDIT 227 Applications of Electronics (3) Two hours of lecture and four hours of laboratory per week Prerequisite EDIT 127 or equivalent An intermediate course providing more extensive knowledge in electricity-electronics including principles of the transmission and reception of radio waves applications of transistors and other semiconductors and an introduction to industrial electronics

EDIT 231 Mechanical Drawing III (2) Four hours of laboratory per week Prerequisite EDIT 121 A continuation of EDIT 121 The reading of prints representative of a variety of industries Advanced working drawings machine design pattern layouts and utilization of computer assisted drawing

EDIT 232 Fundamentals of Automotive Technology (3) Two hours of lecture and four hours of laboratory per week Designed for non-industrial education majors interested in learning the theory and practical operation of the automobile Mechanical lubrication, cooling, fuel and electrical systems

EDIT 233 Fundamentals of Power Technology (3) Two hours of lecture and four hours of laboratory per week Introduction to power generation control, and transmission Emphasis on efficiency of energy converters and use of new and future energy sources, e g , solar fuel cell Laboratory experience in testing and evaluating various energy converters

EDIT 234 Graphic Communications (3) Two hours of lecture and four hours of laboratory per week Graphic reproduction processes and related areas used to communicate Offset, letterpress screen, gravure, engraving flexographic, and electrostatic duplication, and relevant history, safety, layout and design, composition, photo conversion, image carriers, image transfer, finishing, binding, paper and ink

EDIT 241 Architectural Drawing (2) Four hours of laboratory per week Prerequisite EDIT 101 or equivalent. Practical experience in the design and planning of houses and other buildings Working drawings, specifications, blue-prints, and duplication Includes computer-assisted design and drawing

EDIT 242 Operational Drawing (2) Four hours of laboratory per week Prerequisite EDIT 101 or equivalent A comprehensive course designed to give students practice in the modern drafting methods of industry

EDIT 262 Basic Metal Machining (3) Two hours of lecture and four hours of laboratory per week Prerequisite EDIT 101 or equivalent Applications of basic metal cutting operations in mass production including work planning properties of metals and tool materials, conventional metal machining processes and precision measurements

EDIT 270 Field Experiences (3) Two-hour seminar and field placement for one-half day per week Introduction to the teaching and learning processes Career decision information and activities

EDIT 273 Practicum in Ceramics (3) A lecture-studio course designed to introduce the use of clay and ceramics in a wide variety of educational settings

EDIT 288 Special Topics in Education (1-3) Prerequisite permission of department Repeatable to 6 credits if content differs

EDIT 291 Introduction to Plastics Technology (3) Two hours of lecture and four hours of laboratory per week An overview of the plastics industry including properties of plastics, major polymers of the plastics industry and basic molding processes

EDIT 298 Special Problems in Education (1-6) Prerequisite permission of department Repeatable to 6 credits if content differs Available only to freshmen and sophomore majors who have definite plans for individual study of approved problems relative to their preparation for teaching Credit according to extent of work

EDIT 302 Woodworking Technology (3) Two hours of lecture and four hours of laboratory per week Prerequisite EDIT 102 or equivalent A working knowledge of contemporary woodworking technology including testing and macroscopic identification of wood Opportunity for specialized research of the woodworking industry

EDIT 304 Administrative Secretarial Procedures (3) The nature of office work the secretary's function in communication, inter-company and public relations handling records, supplies and equipment, and direction of office forms and procedures in relation to correspondence, mailing, receiving callers, telephoning, handling conferences, and securing business information Business etiquette and ethics

EDIT 305 Secretarial Office Practice (3) Seven hours of laboratory per week Laboratory and office experience A minimum of 90 hours experience under supervision is required In addition each student will prepare a written report on an orginal problem previously approved

EDIT 306 General Shop (3) Organization and administration of a secondary school technical laboratory Skill and knowledge-developing activities for a variety of laboratories

EDIT 311 Laboretory Practicum in Industrial Arts Education (3) Six hours of laboratory per week Prerequisite permission of department 18 semester hours of laboratory work and drawing required The development of instructional materials and the refinement of instructional methods pertinent to the teaching of industrial arts at the secondary school level

EDIT 324 Organized and Supervised Work Experiences II (3) A work experience for students enrolled in the industrial technology program Continuation of EDIT 224

EDIT 326 Science and Technology of Metals (3) Three hours of lecture and three hours of laboratory per week Prerequisite EDIT 226 or equivalent Investigation of the physical properties of metals Emphasis on identification examination and analysis of metals operation of metallurgical laboratory equipment, study of iron carbon diagrams, heat and surface treatments and plastics deformation

EDIT 327 Electronic Semi-Conductor Applications (3) Two hours of lecture and four hours of laboratory per week Prerequisite EDIT 127 or equivalent An advanced course providing more extensive knowledge in electricity or electronics including the advanced theory and applications of semi-conductors and the principles of the storage and transmission of electronically coded information

EDIT 332 Advanced Procedures in Automotive Technology (3) Two hours of lecture and six hours of laboratory per week Prerequisite EDIT 232 or equivalent Designed for students who have a background in engine systems and wish to broaden their knowledge Emission control, electrical systems, and diagnostic problem solving

EDIT 334 Photographic and Electronic Graphic Communications (3) Two hours of lecture and four hours of laboratory per week Prerequisite EDIT 234 or equivalent An intermediate course on contemporary processes relevant to graphic reproduction Photographic, electronic and computer assisted composition techniques contract photoprinting, line and halftone process photography, microphotography, photo screen printing and photo offset lithography

EDIT 335 Continuous Tone Photographic Technology (3) Two hours of lecture and four hours of laboratory per week Prerequisite EDIT 234 or permission of department Theory and techniques pertaining to black-and-white and color light sensitive materials Emphasis on history, cameras, exposure techniques, composition, illumination film processing, contact printing, enlarging, darkroom controls and finishing as related to graphic communications

EDIT 340 Methods of Teaching Office Skills (3) An examination and evaluation of the aims, methods, and course contents of each of the office skill subjects offered in the high school curriculum

EDIT 341--344 curriculum, instruction and observation courses. Offered in separate courses for the various subject matter areas The objectives, selection and organization of subject matter, appropriate methods, lesson plans, textbooks and other instructional materials, measurement, and other topics pertinent to the particular subject matter area are treated Students must reserve day for observation in public schools

EDIT 341 Curriculum, Instruction, and Observation: Business Education (3)

EDIT 342 Curriculum, Instruction, and Observation: Home Economics Education (3)

EDIT 344 Curriculum, Instruction, and Observation: Industrial Arts Education (3)

EDIT 350 Methods of Teaching: Trades and Industrial Education (3) Intended for vocational and occupational teachers The identification and analysis of factors essential to helping others learn, types of teaching situations and techniques, measuring results and grading student progress in laboratory and related technical subjects

EDIT 353 Fire Safety Codes and Standards (3) The legal response to the problems of fire safety Legal issues surrounding the implementation and enforcement of codes with application to industry

EDIT 360 Industrial Production Technology (3) Prerequisite EDIT 262 or permission of department Principles of industrial and laboratory organization Economics of production, capital equipment, labor costs, cost of materials Industrial plant siting, environmental considerations, plant layout and design. Engineering decisions for production, methods analysis, value analysis, quality control Industrial relations

EDIT 362 Advanced Metal Machining Processes (3) Two hours of lecture and four hours of laboratory per week Prerequisite EDIT 262 or equivalent Experience in complex metal cutting operations, special heat treating processes, super precision measurements, electrical, chemical and ultrasonic metal removal, and high energy rate forming with experimentation in specialized machining operations

EDIT 381 Inorganic Nonmetallic Materials (3) Two hours of lecture and four hours of laboratory per week Introduction to inorganic, nonmetallic materials which are applied in the manufacturing and construction industries

EDIT 391 Plastics Processing Fundamentals (3) Lecture and laboratory Prerequisite EDIT 291 or permission of department Experience with plastics production equipment including an intensive study of thermoplastic and thermosetting resins and their fabrication processes

EDIT 399 Trade Competence (1-20) An examination to determine and evaluate the trade competence of students pursuing a degree in the field of vocational-technical education

EDIT 400 Technology Activities For the Elementary School (3) Experience in the development and use of technology and career education instructional materials for construction activities in an interdisciplinary approach to elementary school education

EDIT 401 Essentials of Design (2) Four hours of laboratory per week Prerequisite EDIT 101 A study of the basic principles of design and practice with application to the construction of laboratory projects

EDIT 402 Methods and Materials in Teaching Bookkeeping and Related Subjects (3) Problems and procedures in the mastery of bookkeeping and related office knowledge and skills Consideration of materials and teaching procedures

EDIT 403 Problems in Teaching Office Skills (3) Problems in development of occupational competency achievement tests, standards of achievement, instructional materials, transcription, and the integration of office skills

EDIT 404 Basic Business Education in the Secondary Schools (3) Subject matter selection, methods of organization and presenting business principles, knowledge and practices

EDIT 405 Business Communications (3) The fundamental principles of effective written communication Word usage, grammar, punctuation, principles and procedures for writing business letters and formal research reports

EDIT 406 Word Processing (3) An introduction to the word processing field with emphasis on word processing theory and concepts including hands-on equipment training. Management of office personnel, procedures, and equipment, the incorporation of word processing into the school curriculum, the automated office of the future and career opportunities

EDIT 410 Administration and Program Development for Industrial Arts and Vocational Education (3) Principles and practices of program development and supervision with reference to the role of the departmental chairperson in vocational, technical, and industrial arts programs at the secondary and post-secondary levels

EDIT 412 Management of Physical Facilities in Industrial Arts and Vocational Education (3) Principles, practices, and theory related to the role of the departmental chairperson charged with the management of the physical facilities in vocational, technical, and industrial arts laboratories

EDIT 414 Organization and Coordination of Cooperative Education Programs (3) The organization of a cooperative distributive education program; the development of an effective cooperative relationship between coordinator and training sponsor, the selection, orientation, and training of sponsors, analysis of training opportunities, reports and records, the evaluation and selection of students for part-time cooperative work assignments, and the evaluation of the program

EDIT 415 Financial and Economic Education I (3) Problems of teaching courses in personal finance and economics in the public schools, including materials and resources

EDIT 416 Financial and Economic Education II (3) Continuation of EDIT 415

EDIT 421 Industrial Arts in Special Education (3) One hour of lecture and four hours of laboratory per week Prerequisites [LB]EDSP 470, and EDSP 471] or permission of department Experiences of a technical and theoretical nature in industrial processes applicable for classroom use Emphasis on individual research in the specific area of major interest in special education

EDIT 422 Student Teaching: Industrial Arts Education (2-12)

EDIT 425 Analysis of Industrial Training Programs I (3) An overview of the function of industrial training, including methods of instruction, types of programs and their organization, objectives, and evaluation

EDIT 426 Analysis of Industrial Training Programs II (3) Prerequisite EDIT 425 Continuation of EDIT 425 Studies of training programs in a variety of industries, including plant program visitation, training program development, and analysis of industrial training research

EDIT 427 Experimental Electronics (2) Six hours of laboratory per week Student investigation of an area of electronics of particular interest or usefulness at a depth appropriate for student-based objectives relating to one or more of the following digital circuitry communication, energy conversion, test equipment utilization, analog circuitry

EDIT 432 Student Teaching: Business Education (2-12)

EDIT 433 Advanced Topics in Power Technology (3) Two hours of lecture and four hours of laboratory per week Prerequisite EDIT 233 or equivalent The development of a competency in building and evaluating the performance of energy transmission, control and converter systems Methane digestors, solar collectors, electric motors, steam turbines, and fluid power systems

EDIT 434 Color Reproduction in Graphic Communications (3) Two hours of lecture and four hours of laboratory per week Prerequisites [LB]EDIT 234 and EDIT 334 and EDIT 335] or equivalent An advanced course in the theory and processes of color graphic reproduction Continuous tone color photography flat color preparation, process color separations and the reproduction of a multi-color product on a semi-automatic or automatic printing press

EDIT 435 Curriculum Development in Home Economics (3) An analysis of curriculum development including the tools for planning, managing, and evaluating the teaching-learning environment of conceptual curriculum design

EDIT 436 Analysis of Child Development Laboratory Practices (3) Prerequisite FMCD 332 or EDHD 411 Integration of child development theories with laboratory practices, observation and participation in a secondary school child development laboratory arranged to alternate with class meetings

EDIT 440 Industrial Hygiene (3) Introduction to the concept of industrial hygiene and environmental health Evaluation techniques, instrumentation for identification of problems design parameters for achieving control over environmental epidemiological and toxicological hazards

EDIT 442 Student Teaching: Home Economics Education (2-12)

EDIT 443 Industrial Safety I (3) The history and development of effective safety programs in modern industry including causes, effects and values of industrial safety education including fire prevention and hazard controls

EDIT 444 Industrial Safety II (3) Study of exemplary safety practices through conference discussions, group demonstration, and organized plant visits to selected industrial situations Methods of fire precautions and safety practices Evaluative criteria in safety programs

EDIT 445 Systems Safety Analysis (3) The development of systems safety, a review of probability concepts and the application of systems technique to industrial safety problems Hazard mode and effect, fault free analysis and human factors considerations

EDIT 450 Training Aids Development (3) Study of instructional materials, sources and applications, emphasis on principles for making aids useful to laboratory teachers Actual construction and application of materials will be required

EDIT 451 Research and Experimentation in Industrial Arts (3) A laboratory-seminar course designed to develop persons capable of planning, directing and evaluating effective research and experimentation procedures with the materials, products and processes of industry

EDIT 453 Fire Safety Research and Transfer (3) The technological transfer of scientific findings to private sector fire safety Review of research applicable to the adequacy and reliability of fire safety in industry

EDIT 454 Private Fire Protection Analysis I (3) Risk analysis, life safety and property conservation from fire in industrial properties and complexes Emphasis on a systems approach for implementing private fire protection.

EDIT 455 Private Fire Protection Analysis II (3) Prerequisite EDIT 448 Internal property detection and fire suppression systems that can mitigate a fire in the incipient stage Review of systems, with emphasis on the performance objectives of preventing, controlling, and extinguishing fires

EDIT 457 Tests and Measurements (3) The construction of objective tests for occupational and vocational subjects Use of measures in domains of learning and examination of test analysis techniques

EDIT 460 Design Illustrating II (2) Four hours of laboratory per week Prerequisite EDIT 160 Advanced drawing rendering, shadow construction, lettering techniques and advanced pictorial representation techniques

EDIT 461 Principles of Vocational Guidance (3) The underlying principles of guidance and their application to the problems of educational and occupational adjustment of students of all ages

EDIT 462 Occupational Analysis and Course Construction (3) Application of the techniques of occupational and job analysis concepts to instructional development and the design of occupational programs

EDIT 464 Laboratory Organization and Management (3) The basic elements of organizing and managing an industrial education program, the selection of equipment, facility development, legal responsibilities of laboratory instructors, inventory, storage control and safety

EDIT 465 Modern Industry (3) The manufacturing, service, and extractive industries in American social, economic, and cultural patterns Representative basic industries studied from the viewpoints of personnel and management organization, industrial relations, production procedures, distribution of products, etc

EDIT 466 Educational Foundations of Industrial Arts (3) A study of the factors which place industrial arts education in a well-rounded program of general education

EDIT 467 Problems in Occupational Education (3) The procurement, assembly, organization, and interpretation of data relative to the scope, character and effectiveness of occupational education.

EDIT 470 Numerical Control in Manufacturing (3) The historical development of numerical control (N/C) in manufacturing, recent industrial trends in N/C, and a variety of N/C equipment and support services N/C machine operations machine motions, positioning control systems, N/C tapes and their preparation, manual and computer assisted (APT III) part programming Experience in product design, part programming, and product machining

EDIT 471 History and Principles of Vocational Education (3) The development of vocational education from primitive times to the present with special emphasis given to the vocational education movement with the American program of public education

EDIT 472 Quality Control and Assurance in Industrial Settings (3) Principles and theory of quality control and assurance, with focus on 'quality of conformance' Organizational aspects of QC/QA, data collection and analysis, quality control in input, process and output functions, and human and cultural dimensions of quality control

EDIT 474 Organization and Administration of Youth Groups (3) Principles, practices, and theoretical considerations related to youth organizations as a co-curricular function of the subject areas of industrial arts, business and marketing education, home economics, health occupations and trades and industry

EDIT 475 Recent Technological Developments in Products and Processes (3) Recent technological developments as they pertain to the products and processes of industry The nature of newer products and processes and their effect upon modern industry and/or society

EDIT 476 Application of Technology to Societal Problems (3) A study of alternative solutions of a technological nature with respect to such areas as housing, transportation, energy, communications, production, trash and waste disposal, water development, and pollution control.

EDIT 477 Microcomputer Applications in Technology and Industry (3) Prerequisite EDCI 487 or CMSC 103 or permission of department Manufacturing, safety, and training applications in industrial settings included in programming and software utilization

EDIT 481 Manufacture and Use of Inorganic Nonmetallic Materials (3) Two hours of lecture and four hours of laboratory per week Prerequisite EDIT 381 or equivalent Fabrication of products from calculated compositions, application of forming process, utilization of compositions, experiences with property analysis and product design

EDIT 482 Student Teaching: Trade and Industrial Education (2-12)

EDIT 484--486 Field Experiences in Vocational Areas. Supervised work experience in an occupation related to vocational education Application of theory to work situations as a basis for teaching in vocational education programs By individual arrangement with advisor

EDIT 485 Field Experiences in Business Education (3)

EDIT 488 Selected Topics in Education (1-3) Prerequisite permission of department Repeatable to 6 credits if content differs

EDIT 489 Field Experiences in Education (1-4) Prerequisite permission of department Planned field experience in education-related activities Credit not to be granted for experiences accrued prior to registration

EDIT 491 Plastics Design and Equipment Selection (3) Two hours of lecture and four hours of laboratory per week Prerequisite EDIT 391 or permission of department Experience with material selection, product design, mold design, auxiliary equipment and fixtures

EDIT 492 Issues Encountered in Daily Living in the Home (3) Junior standing Addresses issues such as differing values, orientations, communication styles and the integration of family living, work and parenting

EDIT 493 Home Economics for Special Need Learners (3) Mental, emotional social and physical handicaps affecting learners in home economics education settings The unique needs and abilities of special learners and methods of teaching daily living skills

EDIT 498 Special Problems in Education (1-6) Prerequisite permission of department Available only to majors who have definite plans for individual study of approved problems Credit according to extent of work

EDIT 499 Workshops, Clinics, and Institutes (1-6) Repeatable to 6 credits The following type of educational enterprise may be scheduled under this course heading Workshops conducted by the College of Education (or developed cooperatively with other colleges and universities) and not otherwise covered in the present course listing, clinical experiences in pupil-testing centers, reading clinics, speech therapy laboratories, and special education centers, institutes developed around specific topics or problems and intended for designated groups such as school superintendents, principals and supervisors

EDMS — Measurement, Statistics, and Evaluation

EDMS 410 Principles of Testing and Evaluation (3) Basic principles including the steps in the specification of instructional objectives and subsequent development of teacher-made tests, problems in the use and interpretation of achievement and aptitude tests, introduction to the development and use of non-testing evaluation procedures, basic consideration in the assignment of marks and grades, introduction to computer technology as applied to measurement

EDMS 451 Introduction to Educational Statistics (3) Designed as a first course in statistics for students in education Emphasis is upon educational applications of descriptive statistics, including measures of central tendency, variability and association Also included are inferential statistics through one-way ANOVA

EDMS 465 Algorithmic Methods in Educational Research (3) Introduction to the use of the computer as a tool in educational research Instruction in a basic scientific computer source language as well as practical experience in program writing for solving statistical and educational research problems

EDMS 489 Field Experiences in Measurement and Statistics (1-4) Prerequisite: permission of department Repeatable to 4 credits Planned field experience in education-related activities Credit not to be granted for experiences accrued prior to registration.

EDMS 498 Special Problems in Measurement and Statistics (1-3) Prerequisite permission of department Repeatable to 6 credits Available only to education majors who have formal plans for individual study of approved problems

EDPA — Education Policy, Planning and Administration

EDPA 201 Education in Contemporary American Society (3) An examination of the relationship between education and the social environment in contemporary American society Issues of equality or equal opportunity, individual and cultural differences, education outside of schools, the control of education, and the future of education

EDPA 210 Historical and Philosophical Perspectives on Education (3) An examination of illustrative historical and philosophical examples of the interplay of ideas and events in the shaping of educational aims and practices from ancient cultures to modern technological societies

EDPA 288 Special Problems in Education (1-6) Prerequisite permission of department Available only to freshmen and sophomore students who have definite plans for individual study of approved problems relative to their preparation for teaching

EDPA 301 Foundations of Education (3) Historical social, cultural, and philosophical foundations of American education Considers education as a profession, and the organizational structure, operation and function of modern school systems Comparative education and contemporary issues are included

EDPA 400 The Future of the Human Community (3) Examination of the future of our social and cultural institutions for education and child rearing, social and family relationships, health and leisure, information exchange, and the provision of food, clothing, and shelter

EDPA 401 Educational Technology, Policy, and Social Change (3) Junior standing Examines technology as a complex force which influences social change and the educational development of individuals

EDPA 412 Logic of Teaching (3) An analysis of the structure of basic subject matters in the curriculum and of the standard logical moves in teaching

EDPA 440 Educational Media (3) Survey of classroom uses of instructional media Techniques for integrating media into instruction Includes preparation of a unit of instruction utilizing professional and teacher produced media

EDPA 471 The Legal Rights and Obligations of Teachers and Students (3) Selected state and federal court decisions, legislation, and executive guidelines regulating public education speech and other forms of expression, privacy, suspensions, expulsions, search and seizure, tort liability for negligence (including education malpractice), hiring, promotion, dismissal and non-renewal of teachers No prior legal training required

EDPA 488 Special Topics in Education Policy and Administration (1-3) Prerequisite permission of department Repeatable to 6 credits Special and intensive treatment of current topics and issues in education policy and administration

EDPA 489 Field Experiences in Education (1-4) Prerequisite permission of department Planned field experience in education-related activities Credit not to be granted for experiences accrued prior to registration

EDPA 498 Special Problems in Education (1-3) Prerequisite permission of department Available only to students who have definite plans for individual study of approved problems

EDPA 499 Workshops, Clinics, and Institutes (1-6) Repeatable to 6 credits The following type of educational enterprise may be scheduled under this course heading Workshops conducted by the College of Education (or developed cooperatively with other colleges and universities) and not otherwise covered in the present course listing clinical experiences in pupil-testing centers, reading clinics, speech therapy laboratories, and special education centers, institutes developed around specific topics or problems and intended for designated groups such as school superintendents, principals and supervisors

EDSP — Education, Special

EDSP 210 Introduction to Special Education (3) Characteristics and needs of children with handicaps Current issues in special education.

EDSP 288 Special Topics in Teacher Education (1-3) Prerequisite major in education or permission of department Repeatable to 6 credits if content differs

EDSP 298 Special Problems in Teacher Education (1-6) Prerequisite permission of department Available only to freshmen and sophomore education majors who have definite plans for individual study of approved problems relative to their preparation for teaching Credit according to extent of work

EDSP 320 Introduction to Assessment in Special Education (3) Prerequisite EDSP 210 Pre- or corequisite EDSP 321, and EDSP 322 Recommended STAT 100 or SOCY 201 For EDSP majors only Assessment instruments and procedures and specific criterion-referenced and norm-referenced measures used in special education

EDSP 321 Comparative Approaches to Behavior and Classroom Management in Special Education (3) Prerequisite EDSP 210 Pre- or corequisites EDSP 320, and EDSP 322 The development of behavior and classroom management techniques used in special education

EDSP 322 Field Placement in Special Education I (2-3) Pre- or corequisites EDSP 320 and EDSP 321 For EDSP majors only Practicum experience in special education setting The application of assessment and classroom management procedures Field placement for two or three half-days per week

EDSP 330 Families and the Education of Handicapped Children (3) Prerequisite EDSP 321 Corequisites [EDSP 405 and EDSP 424 and EDSP 445 or EDSP 463] or permission of department For EDSP majors only Emphasis on the impact of handicapped children on families and strategies for communicating and working with families

EDSP 331 Introduction to Curriculum and Instructional Methods in Special Education (3) Prerequisites EDSP 320 and EDSP 321 Pre or corequisites EDSP 332, and EDSP 333 and EDSP 443 For EDSP majors only Instructional principles and programs in special education

EDSP 332 Interdisciplinary Communication in Special Education (3) Prerequisites EDSP 320 and EDSP 321 Pre or corequisites EDSP 331 and EDSP 333 and EDSP 443 For EDSP majors only Terminology procedures and professional roles specific to persons providing services to handicapped children

EDSP 333 Field Placement in Special Education II (2-3) Prerequisite EDSP 322 Pre or corequisites EDSP 331 and EDSP 332, and EDSP 443 For EDSP majors only Practicum experience in special education setting Opportunities to apply curriculum methods and materials Two or three half-days per week

EDSP 349 Student Teaching of Exceptional Children (8) For EDSP majors only Student teaching full-time for eight weeks with exceptional children

EDSP 376 Fundamentals of Sign Language (3) Receptive and expressive skills in American Sign Language Examination of the causes of deafness characteristics of deaf education, and aspects of the culture of the deaf community

EDSP 400 Curriculum and Instructional Methods For Severely Handicapped Students (3) Corequisites [EDSP 402 and EDSP 431] or permission of department Methodology and curriculum for severely handicapped students

EDSP 401 Environmental Adaptations for Severely Handicapped Students (3) Pre- or corequisites [EDSP 411 and EDSP 412] or [EDSP 430 and EDSP 431] Management problems of and alternatives for severely handicapped individuals

EDSP 402 Field Placement: Severely Handicapped I (2-5) Pre- or corequisites [EDSP 400, and EDSP 404] or permission of department Practicum experience in settings serving severely handicapped individuals Enrollment limited to those admitted to severely handicapped specialty area Field placement for two to five half-days per week

EDSP 403 Physical and Communication Development for Severely Handicapped Students (3) Prerequisites [EDSP 400 and EDSP 404] or permission of department Corequisites [LB]EDSP 330, and EDSP 405, and EDSP 410] or permission of department The physical and communication needs, methods and alternatives for severely handicapped individuals

EDSP 404 Education of Autistic Children and Youth (3) Pre- or corequisites [EDSP 400 and EDSP 402] or permission of department The characteristics and educational needs and methods for children and youth diagnosed as autistic

EDSP 40S Field Placement: Severely Handicapped II (2-S) Prerequisite EDSP 402 or permission of department Pre- or corequisites EDSP 330, and EDSP 403; and EDSP 410 or permission of department Practicum experience in settings serving severely handicapped individuals Field placement for two to five half-days per week

EDSP 410 Community Functioning Skills For Severely Handicapped Students (3) Prerequisites [EDSP 400, and EDSP 404] or permission of department Corequisites EDSP 330, and EDSP 403, and EDSP 405 Instructional techniques and curriculum development strategies related to community functioning skills for severely handicapped students

EDSP 411 Field Placement: Severely Handicapped III (2-S) Prerequisite EDSP 405 Pre- or corequisites [EDSP 412, and (EDSP 420 or EDSP 460)] or permission of department Practicum experience in settings serving severely handicapped individuals Field placement for two to five half-days per week

EDSP 412 Vocational Instruction For Severely Handicapped Students (3) Corequisites [EDSP 411, and EDSP 465] or permission of department Development of vocational skills with severely handicapped individuals

EDSP 417 Student Teaching: Severely Handicapped (4-11) Student teaching, full-time for twelve weeks, with severely handicapped individuals Limited to special education majors admitted to severely handicapped specialty area

EDSP 418 Seminar: Issues and Research Related to the Instruction of Severely Handicapped Students (1-3) For EDSP majors only Repeatable to 6 credits if content differs Examines the current research related to the instruction of severely handicapped individuals

EDSP 420 Developmental and Behavioral Characteristics of Nonhandicapped and Handicapped Infants and Young Children (3) Corequisites [EDSP 421, and EDSP 411] or permission of department Study of the developmental, behavioral, and learning characteristics of nonhandicapped and handicapped infants and young preschool children

EDSP 421 Field Placement: Early Childhood Special Education I (2-3) Pre- or corequisite: [EDSP 410 and EDSP 420] or permission of department Practicum experience in settings serving preschool handicapped children Opportunities for studying the patterns of development and learning among nonhandicapped and handicapped infants and older preschoolers Enrollment limited to students admitted to early childhood specialty Field placement for two or three half-days per week

EDSP 422 Curriculum and Instruction in Early Childhood Special Education (Moderate to Mild: 3-8 Years) (3) Prerequisites EDSP 410; and EDSP 420 or permission of department Corequisites EDSP 330, and EDSP 424, and EDCI 416 Characteristics, methods and materials for the instruction of young children (ages 3-8) traditionally labeled mild to moderately handicapped

EDSP 423 Assessment of Preschool Handicapped Children and Infants (3) Prerequisites EDSP 330, and EDSP 422, and EDCI 416 Corequisites EDSP 430, and EDSP 431, and, EDSP 400 or EDSP 441 Current psychoeducational assessment and evaluation procedures used with profoundly to moderately handicapped infants and young preschool children Psychometric, criterion-referenced, developmental checklists, and automated and ecological assessment procedures Administration of selected assessment instruments

EDSP 424 Field Placement: Early Childhood Special Education II (Moderate to Mild) (2-4) Prerequisite EDSP 421 or permission of department Pre- or corequisites EDSP 350; and EDSP 422, and EDCI 416 Practicum experience in settings serving young (ages 3 to 8) mild to moderately handicapped children in self-contained and integrated early childhood programs Opportunities to apply educational methods and materials Field placement for two to four half-days per week

EDSP 430 Intervention Techniques and Strategies For Preschool Handicapped Children and Infants(Severe to Moderate, Birth-6 Years)(3) Prerequisites: EDSP 330, and EDSP 422, and EDCI 416 Corequisites EDSP 423; and EDSP 431; and (EDSP 440 or EDSP 441) Current approaches to the treatment of preschool severely to moderately handicapped children.

EDSP 431 Field Placement: Early Childhood Special Education III (Severe to Moderate) (2-4) Prerequisite: EDSP 424 or permission of department Pre- or corequisites EDSP 430, and EDSP 423; and (EDSP 400 or EDSP 441) Opportunities to apply techniques, strategies, methods and materials for educating severely to moderately handicapped infants and young children. Field placement for two to four half-days per week

EDSP 437 Student Teaching: Early Childhood Special Education (4-11) Student teaching, full-time for twelve weeks, with handicapped infants and preschool children Limited to special education majors in early childhood special education specialty area

EDSP 438 Seminar: Special Issues in Early Childhood Special Education (1-3) Prerequisite permission of department For EDSP majors only Repeatable to 6 credits if content differs Study of current issues and research concerning education of preschool handicapped children

EDSP 440 Assessment and Instructional Design for the Educationally Handicapped: Cognitive and Psychosocial Development (3) Prerequisites: [EDSP 441, and EDCI 456] or permission of department. Pre- or corequisites EDSP 330; and EDSP 445, and EDHD 413 Learning style, cognitive, and problem-solving strategies, and psychosocial behavior of educationally handicapped individuals at elementary to secondary levels Characteristics, assessment and instruction Enrollment limited to Special Education majors accepted into educationally handicapped area of specialization

EDSP 441 Assessment and Instructional Design for the Educationally Handicapped: Oral Language and Communication Disorders (3) Corequisites: [EDSP 442; and EDSP 431] or permission of department. Characteristics of individuals with oral language and communication disorders, assessment of such disorders and instructional strategies, curricula and materials.

EDSP 442 Field Placement: Educationally Handicapped I (2-3) Pre- or corequisite: [EDSP 441 and EDCI 456] or permission of department Practicum experience in settings serving educationally handicapped individuals. Demonstration of the content of EDSP 441 Enrollment limited to students admitted to educationally handicapped specialty Field placement for two or three half-days per week

EDSP 443 Assessment and Instructional Design for the Handicapped: Reading and Written Communication Disorders (3) Prerequisites [EDSP 320, and EDSP 321] or permission of department Pre- or corequisites: EDSP 331, and EDSP 332; and EDSP 333 Characteristics and assessments of individuals with reading and written communication disorders at elementary to secc dary levels, and methods of teaching reading and written language skills to such individuals Adaptation of regular instructional methods and curricula

EDSP 44S Field Placement: Educationally Handicapped II (2-4) Prerequisite: EDSP 442 or permission of department Pre- or corequisites EDSP 330, and EDSP 440; and EDSP 443; and EDHD 413 Practicum experience in settings serving educationally handicapped The application of instructional design and assessment in cognitive development Field placement for 2-4 half-days per week

EDSP 446 Instructional Design for the Educationally Handicapped: Functional Living Skills (3) Pre- or corequisites [EDSP 447 and EDSP 465] or permission of department Instructional methods, curricula and materials designed to teach functional living skills to educationally handicapped individuals at elementary to secondary levels Curricula and teaching strategies in science and social studies used in general education and adaptations for educationally handicapped individuals

EDSP 447 Field Placement: Educationally Handicapped III (2-4) Prerequisite EDSP 445 or permission of department Pre- or corequisites EDSP 446 and EDSP 450, and EDSP 460 Practicum experience in settings serving educationally handicapped individuals The application of the content of EDSP 446, EDSP 450 and EDSP 460 Field placement for two to four half-days per week

EDSP 450 Program Management for the Educationally Handicepped (3) Corequisites [EDSP 411, and EDSP 447, and EDSP 465] or permission of department Emphasis on skills in managing programs for educationally handicapped individuals Service delivery models, scheduling, establishing referral, assessment and follow through procedures, methods for mainstreaming, training aides and volunteers

EDSP 457 Student Teaching: Educationally Handicapped (4-11) For EDSP majors only Student teaching, full-time for twelve weeks, with educationally handicapped individuals

EDSP 458 Seminar: Special Issues and Research Related to the Educationally Handicapped (1-3) Repeatable to 6 credits if content differs Current issues and research concerning the education of educationally handicapped individuals

EDSP 460 Career/Vocational Education For the Handicapped (3) Corequisites: [EDSP 461; and EDSP 411, and EDSP 447] or permission of department Introduction to career/vocational education for the handicapped Historical and current issues and trends, characteristics and training needs of handicapped individuals and review of existing programs.

EDSP 461 Field Placement: Career/Vocational I (2-3) Pre- or corequisite: [EDSP 460; and EDSP 456; and EDIT 421]or permission of department For EDSP majors only Practicum experience in career vocational education for the handicapped Field placement for two or three half-days per week

EDSP 462 Career/Vocational Assessment and Instruction for the Mild to Moderately Handicapped (3) Prerequisite EDSP 460 or permission of department Study of current vocational assessment strategies, interpretation of assessment results, and planning, delivery and evaluation of instruction in vocational education for secondary students with disabilities

EDSP 463 Field Placement: Career/Vocational II (2-3) Prerequisite EDSP 461 or permission of department Pre- or corequisites EDSP 330; and EDSP 462 Practicum experience in career/vocational programs for the handicapped Field placement for two or three half-days per week

EDSP 464 Career/Vocational Assessment and Instruction for Mild to Moderately Handicapped II (3) Prerequisites [EDSP 330; and EDSP 462] or permission of department Pre- or corequisites EDSP 446, and EDSP 450; and EDSP 465 Focuses on transition issues for the handicapped, service delivery methods and models, and cooperative strategies

EDSP 46S Field Placement: Career/Vocational III (2-3) Prerequisite: EDSP 463, pre- or corequisite EDSP 450. Practicum experience in career/vocational programs for the handicapped. Field placement for two or three half days per week

EDSP 467 Student Teaching: Career/Vocational (4-11) A full-time twelve week field assignment in a setting providing career/vocational education for handicapped students Enrollment limited to Special Education majors who have successfully completed coursework in career/vocational area of specialization

EDSP 468 Special Topics Seminar in Career/Vocational Education For the Handicapped (1-3) Prerequisite permission of department. For EDSP majors only Repeatable to 6 credits if content differs Current issues and research relating to career/vocational education of the handicapped

EDSP 470 Introduction to Special Education (3) Designed to give an understanding of the needs of all types of exceptional children

EDSP 471 Characteristics of Exceptional Children: Mentally Retarded (3) Prerequisite: EDSP 470 or equivalent Studies the diagnosis etiology, physical, social and emotional characteristics of exceptional children

EDSP 472 Education of Exceptional Children: Mentally Retarded (3) Prerequisite EDSP 471 or equivalent Offers practical and specific methods of teaching exceptional children Selected observation of actual teaching may be arranged

EDSP 473 Curriculum For Exceptional Children: Mantally Retarded (3) Prerequisite EDSP 471 or equivalent Examines the principles and objectives guiding curriculum for exceptional children, gives experience in developing curriculum, studies various curricula currently in use

EDSP 475 Education of the Slow Learner (3) Studies the characteristics of the slow learner and those educational practices which are appropriate for the child who is functioning as a slow learner

EDSP 476 Communicating with Sign Language (3) Prerequisite EDSP 376 or permission of department Intermediate level receptive/expressive skills in American Sign Language Aspects of the culture, history, and research perspectives of the deaf community

EDSP 480 Microcomputers in Special Education (3) Microcomputers for the education of handicapped individuals

EDSP 481 Characteristics of Exceptional Children: Gifted and Talanted (3) Prerequisite EDSP 470 or equivalent. Studies the diagnosis, etiology, physical, social, and emotional characteristics of gifted and talented children

EDSP 482 Education of Exceptional Children: Gifted end Talented (3) Prerequisite EDSP 481 or equivalent Offers practical and specific methods of teaching gifted and talented children. Selected observation of actual teaching may be arranged

EDSP 483 Curriculum For Exceptional Children: Gifted and Talented (3) Prerequisite EDSP 481 or equivalent Examines the principles and objectives guiding current curriculum for gifted and talented children, gives experience in developing curriculum studies various curricula currently in use

EDSP 488 Selected Topics in Teacher Education (1-3) Prerequisite major in education or permission of department Repeatable to 6 credits if content differs

EDSP 489 Field Experiences in Special Education (1-4) Prerequisite permission of department Planned field experience in education-related activities Credit not to be granted for experiences accrued prior to registration.

EDSP 491 Characteristics of Learning Disabled Students: Perceptual Learning Problems (3) Diagnosis, etiology, physical, social, and emotional characteristics of learning disabled students

EDSP 492 Education of Learning Disabled Students (3) Prerequisite EDSP 491 or permission of department Methods of teaching learning disabled children

EDSP 493 Curriculum For Exceptional Children: Perceptual Learning Problems (3) Prerequisite EDSP 492 or equivalent Examines the principles and objectives guiding curriculum for children with perceptual learning disabilities gives experience in developing curriculum; studies various curricula currently in use

EDSP 498 Special Problems in Special Education (1-6) Prerequisite permission of department Available only to education majors who have definite plans for individual study of approved problems Credit according to extent of work

EDSP 499 Workshops, Clinics, and Institutes in Special Education (1-6) Repeatable to 6 credits if content differs The following type of educational enterprise may be scheduled under this course heading workshops conducted by the special education department (or developed cooperatively with other departments, colleges and universities) and not otherwise covered in the present course listing Laboratories, and special education centers, institutes developed around specific topics or problems and intended for designated groups such as school superintendents, principals and supervisors

EDUC — Education

EDUC 388 Special Topics in Education (1-3) Prerequisite permission of department Repeatable to 6 credits if content differs

ENAE — Engineering, Aerospace

ENAE 201 Introduction to Aerospace Engineering I (2) Prerequisite ENES 110 History of aeronautical engineering, technical fundamentals, the standard atmosphere, basic aerodynamics, and the aerodynamics of airfoils, wings and other aerodynamic shapes

ENAE 202 Introduction to Aerospace Engineering II (2) Prerequisite ENAE 201 Elements of airplane performance Principles of airplane stability and control Basic astronautics, including orbital and escape trajectories flight propulsion fundamentals, propellers IC engines, jet and rocket engines

ENAE 305 Aerospace Laboratory I (3) Prerequisite PHYS 263; Pre- or corequisites ENAE 345 and ENAE 451 and ENAE 371 Measurement philosophy data analysis, error assessment, sensing devices optical methods material tests, flow visualization techniques manometry dynamic response of measurement systems Application of instrumentation in aerospace engineering

ENAE 345 Flight Dynamics (3) Prerequisites ENES 221, and MATH 246 Kinematics and concept of system state Dynamic principles applied to particles, discrete mass and continuously distributed mass systems. LaGrangian dynamics, dynamic stability of systems, applications to dynamics of aerospace vehicles and vehicle components

ENAE 355 Aircraft Vibrations (3) Prerequisite ENAE 345 or equivalent Free and forced vibration of single and multiple degree of freedom systems

ENAE 371 Aerodynamics I (3) Prerequisites ENAE 202 and PHYS 262, and MATH 241 Corequisite MATH 246 Basic fluid mechanics and aerodynamic theory

ENAE 398 Honors Research Project (1-3)

ENAE 401 Aerospace Laboratory II (2) Prerequisites ENAE 305, and ENAE 345 Corequisites ENAE 452, and ENAE 471 Application of fundamental measurement techniques to experiments in aerospace engineering, structural, aerodynamic, and propulsion tests, correlation of theory with experimental results

ENAE 402 Aerospace Laboratory III (1) Prerequisites ENAE 305, and ENAE 345 Corequisites ENAE 452, and ENAE 471, and ENAE 475 Application of fundamental measurement techniques to experiments in aerospace engineering, structural, aerodynamic, flight simulation, and heat transfer tests Correlation of theory with experimental results

ENAE 411 Aircraft Design (3) Prerequisites ENAE 345, and ENAE 451, and ENAE 371 Theory, background and methods of airplane design, subsonic and supersonic

ENAE 412 Design of Aerospace Vehicles (3) Prerequisites ENAE 345, and ENAE 371 Theory, background and methods of space vehicle design for manned orbiting vehicles, manned lunar and planetary landing systems

ENAE 415 Computer-Aided Structural Design Analysis (3) Prerequisite ENAE 452 or permission of both department and instructor Introduction to structural design concepts and analysis techniques Introduction to computer software for structural analysis which is utilized to verify exact solutions and perform parametnc design studies of aerospace structures

ENAE 445 Stability and Control of Aerospace Vehicles (3) Prerequisites. ENAE 345, and ENAE 371 Dynamics of flight vehicles with emphasis on stability and control of vehicles in the atmosphere.

ENAE 451 Flight Structures I: Introduction to Solid Mechanics (4) Prerequisite ENES 220 An introduction to the analysis of aircraft structural members Introduction to theory of elasticity, mechanical behavior of materials, thermal effects, finite-difference approximations, virtual work, variational and energy principles for static systems

ENAE 452 Flight Structures II: Structural Elements (3) Prerequisite, ENAE 451 Application of variational and energy principles to analysis of elastic bodies, stresses and deflections of beams including effects of non-principal axes, non-homogeneity, and thermal gradients, differential equations of beams, bars, and cables Stresses and deflections of torsional members, stresses due to shear Deflection analysis of structures

ENAE 453 Matrix Methods in Computational Mechanics (3) Prerequisite ENAE 452 or permission of both department and instructor Introduction to the concepts of computational analysis of continuous media by use of matrix methods Foundation for use of finite elements in any field of continuum mechanics, with emphasis on the use of the displacement method to solve thermal and structural problems

ENAE 457 Flight Structures III (3) Prerequisite ENAE 452 or equivalent An advanced undergraduate course dealing with the theory and analysis of the structures of flight vehicles Stresses due to shear, indeterminate structures, plate theory, buckling and failure of columns and plates

ENAE 461 Flight Propulsion I (3) Prerequisites ENAE 217 and ENAE 471 Operating principles of piston, turbojet, turboprop, ramjet and rocket engines, thermodynamic cycle analysis and engine performance, aerothermochemistry of combustion, fuels, and propellants

ENAE 462 Flight Propulsion II (3) Prerequisite ENAE 461 Advanced and current topics in flight propulsion

ENAE 471 Aerodynamics II (3) Prerequisites ENAE 371, and ENME 217 Elements of compressible flow with applications to aerospace engineering problems

ENAE 472 Aerodynamics III (3) Prerequisite ENAE 371 Theory of the flow of an incompressible fluid

ENAE 473 Aerodynamics of High-Speed Flight (3) Prerequisite ENAE 471 or equivalent An advanced course dealing with aerodynamic problems of flight at supersonic and hypersonic velocities Unified hypersonic and supersonic small disturbance theories real gas effects aerodynamic heating and mass transfer with applications to hypersonic flight and re entry

ENAE 475 Viscous Flow and Aerodynamic Heating (3) Prerequisites ENAE 371, and ENAE 471 and ENME 217 Fundamental aspects of viscous flow Navier-Stokes equations, similarity boundary layer equations, laminar, transitional and turbulent incompressible flows on airfoils thermal boundary layers and convective heat transfer conduction through solids introduction to radiative heat transfer

ENAE 488 Topics in Aerospace Engineering (1-4) Technical elective taken with the permission of the student s advisor and instructor Lecture and conference courses designed to extend the student's understanding of aerospace engineering Current topics are emphasized

ENAE 499 Elective Research (1-3) Prerequisites senior standing in ENAE major and permission of department instructor, and student's advisor Repeatable to 6 credits Original research projects terminating in a written report

ENAE 588 Professional Development Topics in Aerospace Engineering (1-3) Prerequisite permission of both department and instructor Repeatable to 3 credits Current topics in aerospace engineering chosen to provide for the professional development of practicing engineers May not be credited toward a graduate school degree

ENAE 589 Professional Development Topics in Aerospace Engineering (1-3) Prerequisite permission of both department and instructor Repeatable to 3 credits Current topics in aerospace engineering chosen to provide for the professional development of practicing engineers May not be credited toward a graduate school degree

ENAG — Engineering Agricultural

ENAG 100 Basic Agricultural Engineering Technology (3) An introduction to the application of engineering concepts Topics include quantification measurements mechanical thermal fluid and electrical principles and their relationship to biological systems and materials of agricultural and aquacultural products (for non-engineering majors)

ENAG 200 Introduction to Farm Mechanics (2) One lecture and one laboratory period a week A study of the hand tools and power equipment and their safe use as it applies to mechanized farms Principles and practice in arc and gas welding, cold metal and sheet metal work are provided Also, tool fitting woodworking, plumbing blue print reading and use of concrete

ENAG 232 Water, A Reneweble Resource (3) Occurrence and distribution of water Review of both natural and man-made water resource systems Basics of water quality and waste water treatment

ENAG 234 Principles of Erosion and Water Control (1) Introduction to principles of estimating runoff and erosion Engineering principles necessary to control erosion and runoff from agricultural areas For non-engineering students

ENAG 236 Design of Drainage Systems (1) Effect of drainage on crop production and quality Design of agricultural drainage systems For non-engineering students

ENAG 237 Design of Irrigation Systems (1) Principles and practices of agricultural irrigation including types of irrigation systems, soil water concepts, computing evapotranspirati on irrigation scheduling and design of a sprinkler irrigation system For non-engineering students

ENAG 305 Farm Mechanics (2) Two laboratory periods a week available only to seniors in agricultural education This course consists of laboratory exercises in practical farm shop and farm equipment maintenance repair and construction projects, and a study of the principles of shop organization and administration

ENAG 315 Energy: Its Effects On Agriculture and Food (3) Introduction to the current energy problems in agricultural production and food supply Energy issues alternate sources of energy energy conservation practices possible solutions and limitations

ENAG 401 Agricultural Production Equipment (3) Two lectures and one laboratory per week Prerequisite ENAG 100 Principles of operation and functions of power and machinery units as related to tillage cutting conveying and separating units, and control mechanisms Principles of internal combustion engines and power unit components

ENAG 402 Agricultural Materials Handling and Environmental Control (3) Two lectures and one laboratory per week Prerequisite ENAG 100 Characteristics of construction materials and details of agricultural structures Fundamentals of electricity electrical circuits and electrical controls Materials handling and environmental requirements of farm products and animals

ENAG 414 Mechanics of Food Processing (4) Three lectures and one laboratory per week Prerequisite PHYS 121 Applications in the processing and preservation of foods of power transmission hydraulics electricity thermodynamics refrigeration instruments and controls materials handling and time and motion analysis

ENAG 421 Power Systems (3) Two lectures and one two hour laboratory per week. Prerequisites: ENME 217 ENEE 300 and ENME 342 or ENCE 330. Analysis of energy conversion devices including internal combustion engines, electrical and hydraulic motors. Fundamentals of power transmission and coordination of power sources with methods of power transmission.

ENAG 422 Soil and Water Engineering (3) Three lectures per week. Prerequisite: ENME 342 or ENCE 330. Applications of engineering and soil sciences in erosion control, drainage irrigation and watershed management. Principles of agricultural hydrology and design of water control and conveyance systems.

ENAG 424 Functional and Environmental Design of Agricultural Structures (3) Two lectures and one hour laboratory per week. Prerequisite: ENAG 454. An analytical approach to the design and planning of functional and environmental requirements of plants and animals in semi- or completely enclosed structures.

ENAG 432 General Hydrology (3) Three lectures per week. Qualitative aspects of basic hydrologic principles pertaining to the properties, distribution and circulation of water as related to public interest in water resources.

ENAG 433 Engineering Hydrology (3) Three lectures per week. Prerequisites: MATH 246, ENCE 330 or ENME 342. Properties, distribution and circulation of water from the sea and in the atmosphere emphasizing movement overland, in channels and through the soil profile. Qualitative and quantitative factors are considered.

ENAG 435 Aquacultural Engineering (3) Prerequisite: consent of department. A study of the engineering aspects of development, utilization and conservation of aquatic systems. Emphasis will be on harvesting and processing aquatic animals or plants as related to other facets of water resources management.

ENAG 444 Functional Design of Machinery and Equipment (3) Two lectures and one two-hour laboratory per week. Prerequisite: ENES 221 and senior standing. Theory and methods of agricultural machine design. Application of machine design principles and physical properties of soils and agricultural products in designing machines to perform specific tasks.

ENAG 454 Biological Process Engineering (4) Prerequisite: ENME 342 or ENCE 330. Design of systems to pump, heat, cool, dry and control biological materials as part of food and agricultural engineering. The effect of physical parameters on biological material response to these processes.

ENAG 488 Topics in Agricultural Engineering Technology (1-3) Prerequisite: permission of the instructor. Selected topics in agricultural engineering technology of current need and interest. May be repeated to a maximum of six credits if topics are different. Not acceptable for credit towards major in agricultural engineering.

ENAG 489 Special Problems in Agricultural Engineering (1-3) Prerequisite: approval of department. Student will select an engineering problem and prepare a technical report. The problem may include design, experimentation, and/or data analysis.

ENAG 499 Special Problems in Agricultural Engineering Technology (1-3) Prerequisite: approval of department. Not acceptable for majors in agricultural engineering. Problems assigned in proportion to credit.

ENCE — Engineering, Civil

ENCE 221 Introduction to Environmental Engineering (3) Prerequisites: CHEM 103, and PHYS 161. An introductory exposition of those physical, chemical, and biological systems relating to the quality of the land, water, and air environments. Current environmental pollution problems and methods of pollution abatement.

ENCE 280 Engineering Survey Measurements (3) Two hours of lecture and one hour of laboratory per week. Prerequisite: MATH 141. Standards,units, calibration, measurement of distance, elevation, angles, systematic and random error analysis in measurements, fundamentals of mapping, instrumentation.

ENCE 300 Fundamentals of Engineering Materials (3) Two hours of lecture and one hour of laboratory per week. Pre-or corequisite: ENES 220. Properties and constitution of the principal materials used in civil engineering. Laboratory tests for these properties, interpretation of test results and of specifications.

ENCE 330 Basic Fluid Mechanics (3) Prerequisites: ENES 220; and ENES 221, and PHYS 262. The study of fluids at rest and in motion. Principles of viscous and turbulent flow. Impulse and momentum concepts. Pumps, turbines and meters. Dimensional analysis and laws of similarity.

ENCE 340 Fundamentals of Soil Mechanics (3) Prerequisite: ENES 220. Corequisite: ENCE 300. Introductory study of soils in civil engineering. Soil origin, phase relationships and classification schemes. Soil hydraulics capillary effective stress, permeability and seepage considerations. Basic stress distribution theories and soil consolidation-settlement analysis. Integration of shear strength evaluation with slope stability analysis.

ENCE 350 Structural Analysis and Design I (3) Prerequisite: ENES 220. Corequisite: ENCE 300. Methods of analysis of statically determinate structures for fixed and moving loads. Equilibrium, influence lines, stability. Structural design of steel buildings and bridges, including design of tension members, beams, columns, trusses, and welded, bolted, and riveted connections.

ENCE 351 Structural Analysis and Design II (3) Prerequisites: ENCE 300, and ENCE 350. Analyses for stresses in statically indeterminate beams and frames by approximate methods and by moment distribution. Influence lines and maximum shear and moment for continuous members. Design of reinforced concrete beams, continuous beams, and columns by elastic theory and by ultimate strength design.

ENCE 360 Engineering Analysis and Computer Programming (4) Prerequisite: MATH 241. Introduction to the elements of Fortran and the algorithmic approach in the analysis of civil engineering problems. Methods of numerical analysis including the solution of linear systems of equations, numerical quadrature, differentiation, interpolation, and the solution of polynomial and transcendental equations. Instruction in the computer solution of civil engineering problems.

ENCE 370 Fundamentals of Transportation Engineering (3) Prerequisite: ENCE 280. Engineering problems of transportation by airways, highways, pipelines, railways, and waterways. Elementary dynamics of traffic and function consideration of routes and terminals.

ENCE 398 Honors Research Project (1-3)

ENCE 410 Advanced Strength of Materials (3) Prerequisites: ENES 220; and ENCE 350; and MATH 246. Strength and deformation of deformable bodies, plane stress and strain. Torsion theory, unsymmetrical bending, curved beams. Behavior of beams, columns, slabs, plates and composite members under load. Elastic and inelastic stability.

ENCE 411 Construction Scheduling and Estimating (4) Two hours of lecture and one hour of laboratory per week. Use of critical path planning and scheduling with arrow and precedence networks, project time control, introduction to resource leveling and least cost scheduling. Cost estimating, using cost indices. Parametric estimates and unit price estimates.

ENCE 420 Construction Equipment and Methods (3) Evaluation and selection of equipment and methods for engineering/construction projects, including earthmoving, paving, steel and concrete construction, rock excavation, tunneling, site preparation, and organization of the site.

ENCE 421 Construction Engineering and Management (3) Overview of the construction industry and the factors that need to be considered to successfully manage engineering/construction projects. Introduction into how resources of money, labor, material and equipment are committed and managed within the construction environment.

ENCE 430 Hydraulic Engineering and Open Channel Flow (4) Three hours of lecture and one hour of laboratory per week. Prerequisite: ENCE 330. Application of basic principles to the solution of engineering problems. Ideal fluid flow, mechanics of fluid resistance, open channel flow under uniform, gradually varied and rapidly varied conditions, sediment transport, role of model studies in analysis and design.

ENCE 431 Surface Water Hydrology (3) Prerequisite: ENCE 330. Study of the physical processes of the hydrologic cycle. Hydrometeorology, concepts of weather modification, evaporation and transpiration infiltration studies, runoff computations, flood routing, reservoir requirements, emphasis on process simulation as a tool in the water resource development.

ENCE 432 Ground Water Hydrology (3) Prerequisite: ENCE 330. Concepts related to the development of the ground water resource, hydrogeology, hydrodynamics of flow through porous media, hydraulics of wells, artificial recharge, sea water intrusion, basin-wide ground water development.

ENCE 433 Environmental Engineering Analysis (3) Two hours of lecture and one hour of laboratory per week. Prerequisites: CHEM 113, and ENCE 221. The theory and analytical techniques used in evaluating man's environment. Emphasis on quantitative, physical, electroanalytical and organic chemistry as applied to chemical analysis of water.

ENCE 434 Air Pollution (3) Classification of atmospheric pollutants and their effects on visibility, inanimate and animate receptors. Evaluation of source emissions and principles of air pollution control, meteorological factors governing the distribution and removal of air pollutants air quality measurements and air pollution control legislation.

ENCE 435 Sanitary Engineering Analysis and Design (4) Three hours of lecture and one hour of laboratory per week. Prerequisites: ENCE 221, and ENCE 330. The application of sanitary analysis and fundamental principles to the design and operation of water and waste water treatment plants and the control of stream pollution.

ENCE 440 Engineering Soil Tests (4) Two hours of lecture and two hours of laboratory per week. Prerequisite: ENCE 340. Review of major soil tests and their interpretation for engineering purposes. Engineering classification tests (Atterberg limits, grain-size distribution, specific gravity), permeability and seepage properties, in-situ and lab density, moisture tests, soil strength (penetrometers, vane shear, CBR, unconfined compression, direct shear and triaxial) and compressibility characteristics.

ENCE 441 Soil-Foundation Systems (3) Prerequisite: ENCE 340. Review of classical lateral earth pressure theories, analysis of braced excavation systems, cantilever and anchored sheet piling design, bearing capacity of shallow foundations (footings and mats) design of deep pile foundations to include pile capacity and pile group action.

ENCE 442 Highway and Airfield Pavement Design (3) Prerequisite: ENCE 340. Principles relative to the design, construction and rehabilitation of highway and airfield pavement systems. Introduction to multi-layered elastic and slab theories, properties of pavement materials and methods of characterization, stochastic treatment of design variables, economic principles of design alternates and the effect of environment upon pavement performance. Review of existing rigid and flexible design methods as well as major fundamentals relative to the rehabilitation of existing pavement systems.

ENCE 450 Design of Steel Structures (3) Pre- or corequisites: ENCE 360; and ENCE 351. Analyses for stresses and deflections in structures by methods of consistent deformations, virtual work and internal strain energy. Application to design of plate girders, indeterminate and continuous trusses, two hinged arches and other structures. Elements of plastic analysis and design of steel structures.

ENCE 451 Design of Concrete Structures (4) Three hours of lecture and one hour of laboratory per week. Prerequisite: ENCE 351. Pre- or corequisite: ENCE 360. Design of reinforced concrete structures, including slabs, footings, composite members, building frames, and retaining walls. Approximate methods of analysis, code requirements, influence of concrete properties on strength and deflection, optimum design. Introduction to prestressed concrete design.

ENCE 460 Modern Techniques For Structural Analysis (3) Two hours of lecture and one hour of laboratory per week. Prerequisite: ENCE 360. Pre- or corequisite: ENCE 351. Application of computer oriented methods and numerical techniques to analysis and design of structural systems. Matrix formulation of the stiffness and flexibility methods for framed structures. Introduction of numerical techniques to the solution of selected problems in such topics as plates, structural stability, and vibrations.

ENCE 461 Analysis of Civil Engineering Systems I (3) Prerequisite: permission of department. Application of the principles of engineering economy and statistics to the solution of civil engineering problems. Economic comparison of alternatives using present worth, annual cost, rate of return and cost benefit analyses. Development and use of simple and multiple regression models, and statistical decision theory.

ENCE 463 Engineering Economics and System Analysis (3) Prerequisite: permission of department. Development and application of the principles of engineering economics to problems in civil engineering. Evaluation of design alternatives, depreciation and sensitivity analysis. Use of systems analysis techniques, including CPM, PERT and decision networks. Introduction to microeconomic analysis.

ENCE 470 Highway Engineering (4) Three hours of lecture and three hours of laboratory per week. Prerequisite: ENCE 370. Location design, construction and maintenance of roads and pavements. Introduction to traffic engineering.

ENCE 473 Air and Water Transportation Engineering (3) Prerequisite: ENCE 370. Detailed study of the planning, design, construction, operations and maintenance of airports and waterways, emphasis on design and operations of transportation facilities.

ENCE 474 Railroad Mass Transportation Engineering (3) Prerequisite: ENCE 370. Detailed study of the planning, design, construction, operations, and maintenance of railroads and mass transportation systems, emphasis on design and operations of transportation facilities.

ENCE 489 Special Problems (3) Senior standing A course arranged to meet the needs of exceptionally well prepared students for study in a particular field of civil engineering

ENCH — Engineering, Chemical

ENCH 215 Chemical Engineering Analysis (3) Prerequisite CHEM 104 Pre- or corequisite MATH 141 Introduction to methods of chemical engineering calculations and analysis Stoichiometnc relations, material and energy balances, and behavior of gases, vapors, liquids and solids Analytical and computer methods

ENCH 280 Transport Processes I: Fluid Mechanics (2) Pre- or corequisite MATH 246 Fluid properties, fluid statics, flow concepts and basic equations, viscous effects Applications in measurement of flow closed conduit flow, packed bed and other chemical engineering systems

ENCH 300 Chemical Process Thermodynamics (3) Prerequisites CHEM 203, and ENCH 215; and MATH 241 Principles of thermodynamics and their application to engineering problems First and second laws of thermodynamics, properties of gases, liquids and solids, phase equilibrium, flow and non-flow systems, energy conversion, production of work from heat, thermodynamic analysis of processes, equilibrium stage operations and the thermodynamics of chemically reacting systems

ENCH 333 Chemical Engineering Seminar (1) Prerequisite senior standing Oral and written reports on recent developments in chemical engineering and the process industries

ENCH 398 Honors Research Project (1-3)

ENCH 425 Transport Processes II: Heat Transfer (3) Prerequisite MATH 246 Pre- or corequisite ENCH 280 Steady and unsteady state conduction, convective heat transfer, radiation, design of condensers, heat exchangers, evaporators, and other types of heat transfer equipment

ENCH 427 Transport Processes III: Mass Transfer (3) Prerequisite ENCH 425 Steady and unsteady state molecular diffusion, inter-phase transfer, simultaneous heat and mass transfer, boundary layer theory, mass transfer and chemical reaction Design applications in humidification, gas absorption, distillation, extraction, adsorption and ion exchange

ENCH 437 Chemical Engineering Laboratory (3) Prerequisites ENCH 427, and ENCH 440, and ENCH 442 Application of chemical engineering process and unit operation principles in small scale semi-commercial equipment Data from experimental observations are used to evaluate performance and efficiency of operations Emphasis on correct presentation of results in report form

ENCH 440 Chemical Engineering Kinetics (3) Prerequisites ENCH 300, and ENCH 425, and CHEM 481 Fundamentals of chemical reaction kinetics and their application to the design and operation of chemical reactors Reaction rate theory, homogeneous reactions and catalysis electrochemical reactions Catalytic reactor design

ENCH 442 Chemical Engineering Systems Analysis (3) Prerequisites ENCH 300, and ENCH 425 Dynamic response applied to process systems Goals and modes of control, Laplace transformations, analysis and synthesis of simple control systems, closed loop response, dynamic testing

ENCH 444 Process Engineering Economics and Design I (3) Prerequisites ENCH 427, and ENCH 440, and ENCH 442 Principles of chemical engineering economics and process design Emphasis on equipment types, equipment design principles, capital cost estimation, operating costs, and profitability

ENCH 445 Process Engineering and Design (3) Prerequisite ENCH 427 Utilization of chemical engineering principles for the design of process equipment Typical problems in the design of chemical plants Comprehensive reports are required

ENCH 446 Process Engineering Economics and Design II (3) Prerequisite ENCH 444 Not open to students who have completed ENCH 445 Application of chemical engineering principles for the design of chemical processing equipment Typical problems in the design of chemical plants

ENCH 450 Chemical Process Development (3) Prerequisite ENCH 427 Chemical process industries from the the standpoint of technology raw materials, products and processing equipment Operations of major chemical processes and industries combined with quantitative analysis of process requirements and yields

ENCH 452 Advanced Chemical Engineering Analysis (3) Prerequisite ENCH 427 Application of digital and analog computers to chemical engineering problems Numerical methods programming differential equations, curve fitting amplifiers and analog circuits

ENCH 453 Applied Mathematics in Chemical Engineering (3) Prerequisite ENCH 427 Mathematical techniques applied to the analysis and solution of chemical engineering problems Use of differentiation integration differential equations partial differential equations and integral transforms Application of infinite series numerical and statistical methods

ENCH 454 Chemical Process Analysis and Optimization (3) Prerequisites ENCH 427 and ENCH 440 Applications of mathematical models to the analysis and optimization of chemical processes Models based on transport, chemical kinetics and other chemical engineering principles will be employed Emphasis on evaluation of process alternatives

ENCH 455 Chemical Process Laboratory (3) One hour of lecture and six hours of laboratory per week Prerequisites ENCH 427, and ENCH 440 Experimental study of various chemical processes through laboratory and small semi-commercial scale equipment Reaction kinetics fluid mechanics, heat and mass transfer

ENCH 461 Control of Air Pollution Sources (3) Prerequisite senior standing in engineering or permission of both department and instructor Theory and application of methods for the control and removal of airborne materials Principles of design and performance of air quality control equipment

ENCH 468 Research (1-3) Prerequisite permission of both department and instructor Repeatable to 6 credits Investigation of a research project under the direction of a faculty member Comprehensive reports are required

ENCH 475 Electrochemical Engineering (3) Prerequisite ENCH 425 Fundamentals of electrochemistry with application to engineering and commercial processes Equilibrium potentials, reaction mechanisms, cell kinetics polarization, surface phenomena Electrorefining, electrowinning, oxidation and reduction, solid, liquid and gas systems Aspects of design and performance of electroprocess plants

ENCH 480 Engineering Analysis of Physiological Systems (3) Engineering description and analysis of physiological systems Survey of bioengineering literature and an introduction to mathematical modeling of physiological systems

ENCH 482 Biochemical Engineering (3) Prerequisite senior standing in engineering or permission of both department and instructor Introduction to biochemical and microbiological applications to commerical and engineering processes including industrial fermentation, enzymology ultrafiltration, food and pharmaceutical processing and resulting waste treatment Enzyme kinetics, cell growth, energetics and mass transfer

ENCH 485 Biochemical Engineering Laboratory (2) Pre- or corequisite ENCH 482 Techniques of measuring pertinent parameters in fermentation reactors, quantification of production variables for primary and secondary metabolites such as enzymes and antibiotics, the insolubilization of enzymes for reactors and the demonstration of separation techniques such as ultrafiltration and affinity chromatography

ENCH 490 Introduction to Polymer Science (3) Prerequisite ENCH 425 The elements of the chemistry physics, processing methods, and engineering applications of polymers

ENCH 492 Applied Physical Chemistry of Polymers (3) Prerequisite CHEM 481 Corequisite CHEM 482 or permission of both department and instructor Kinetics of formation of high polymers, determination of molecular weight and structure, and applied thermodynamics and phase equilibria of polymer solutions

ENCH 494 Polymer Technology Laboratory (3) One hour of lecture and two hours of laboratory per week Prerequisite ENCH 490 or ENCH 492 Measurement of mechanical, electrical optical, thermal properties of polymers, measurement of molecular weight by viscometry isomatric and light scattering methods Application of X ray NMR, ESR, spectroscopy molecular relaxation microscopy and electron microscopy to the determination of polymer structure, effects of ultraviolet light and high energy radiation

ENCH 495 Rheology of Polymer Materials (3) Prerequisite ENCH 490 or ENCH 492 Credit will be granted for only one of the following ENCH 495 or ENMA 495 Mechanical behavior with emphasis on the continuum point of view and its relationship to structural types Elasticity viscoelasticity anelasticity and plasticity of single phase and multiphase materials

ENCH 496 Processing of Polymer Materials (3) Prerequisite ENCH 490 or ENCH 492 Credit will be granted for only one of the following ENCH 496 or ENMA 496 A comprehensive analysis of the operations carried out on polymeric materials to increase their utility Conversion operations such as molding extrusion blending film forming and calendering Development of engineering skills required to practice in the high polymer industry

ENCO — Engineering, Cooperative Education

ENCO 098 Co-Op Work Experienca (0) Prerequisite successful completion of freshman and sophomore engineering requirements Through alternate semesters of full-time work and full-time study Co-op provides students with a year of practical work experience related to their major Students must register for both ENCO 098 and ENCO 099 if they are working fall or spring semesters Students should register for ENCO 098 if they are working during a summer semester

ENCO 099 Co-Op Work Experience (0) Prerequisite successful completion of freshman and sophomore engineering requirements Through alternating semesters of full-time and full-time study Co-op provides students with a year of practical work experience related to their major Students must register for both ENCO 098 and ENCO 099 if they are working fall or spring semesters

ENEE — Engineering, Electrical

ENEE 204 Systems and Circuits I (3) Prerequisite MATH 141 Required of sophomores in electrical engineering Kirchhoff's laws, linear nonlinear, and time-varying elements of systems and circuits Solution of circuit differential equations, zero input, zero state, and complete response Coupled elements, ideal transformers controlled sources Node and mesh analysis in the time domain

ENEE 250 Computer Structures (3) Prerequisites ENEE 240 or equivalent Basic structure and organization of digital computers number systems and data representation, assembly language (some simple assembly language programs will be run), introduction to system software gates and memory elements, logic design of simple digital systems, reliability hardware/software tradeoffs

ENEE 300 Principles of Electrical Engineering (3) Prerequisites MATH 241, PHYS 263 Corequisite ENEE 301 Required of aerospace, mechanical and chemical engineers Not applicable in the electrical engineering major program Acceptable as prerequisite for some advanced ENEE courses Analysis of linear systems, introduction to Laplace transforms, steady-state A-C transforms, introduction to the concepts of electromagnetic fields and electric machines

ENEE 301 Electrical Engineering Laboratory (1) Two hours of laboratory per week Corequisite ENEE 300 Experiments on the transient and steady-state response of linear circuits, electric machines, electron tubes and semi conductor devices

All lower-division CHEM, MATH, PHYS and Engineering courses that are required courses for the BS degree in Electrical Engineering must be completed before enrolling in any 300- or 400-ENEE course (except ENEE 300 and ENEE 301). Transfer students will be allowed one semester to complete all such courses after starting to take upper-level ENEE courses.

ENEE 304 Systems and Circuits II (3) Pre- or corequisite MATH 246 Prerequisite ENEE 204 and completion of all lower-division technical courses in the EE curriculum See above note Sinusoidal analysis General mesh and node analysis Analysis by laplace transforms network functions, network theorems Two port theory controlled sources, small signal analysis of semiconductor devices Fourier series

ENEE 305 Fundamental Laboratory (2) One lecture and three lab hours per week Prerequisite ENEE 204 and completion of all lower-division technical courses in the EE curriculum See above note Concepts and techniques of physical measurements using standard electrical measuring devices generators oscilloscopes voltmeters etc Measurements of linear and non linear circuits steady state and step response integrated circuits Handling and use of data This course is prerequisite to all ENEE 400-level laboratory courses

ENEE 314 Electronic Circuits (3) Prerequisite ENEE 304 and completion of all lower division technical courses in the EE curriculum See above note Characteristics of semiconductor devices Diodes biasing and stabilization of bipolar and field effect transistors power amplifier characteristics Feedback amplifiers integrated operational amplifiers transistor switches gates and integrated logic circuits bistable multivibrators and applications in counters registers and selected digital networks

ENEE 322 Signal and System Theory (3) Prerequisites: ENEE 204 and MATH 246 and completion of all lower division technical courses in the EE curriculum. See above note. Concept of linear systems, state space equations for continuous and discrete systems, time domain analysis of linear systems. Fourier, Laplace and Z transforms. Application of theory to problems in electrical engineering.

ENEE 324 Engineering Probability (3) Prerequisite: ENEE 322 and completion of all lower-division technical courses in the EE curriculum. See above note. Axioms of probability, conditional probability and Bayes' rules, random variables, probability distribution and densities, functions of random variables, weak law of large numbers and central limit theorem. Introduction to random processes, correlation functions, spectral densities, and linear systems. Applications to noise in electrical systems, filtering of signals from noise, estimation, and digital communications.

ENEE 380 Electromagnetic Theory (3) Prerequisites: MATH 241 and PHYS 263 and completion of all lower-division technical courses in the EE curriculum. See above note. Introduction to electromagnetic fields. Coulomb's law, Gauss's law, electrical potential, dielectric materials, capacitance, boundary value problems, Biot-Savart law, Ampere's law, Lorentz force equation, magnetic materials, magnetic circuits, inductance, time varying fields and Maxwell's equations.

ENEE 381 Electromagnetic Wave Propagation (3) Prerequisite: ENEE 380 and completion of all lower-division technical courses in the EE curriculum. See above note. Review of Maxwell's equations, the wave equation, potentials, Poynting's theorem. Transmission, lossy medium, skin effect. Parallel-plate and rectangular wave-guides. Radiation, retarded potentials, radiation from dipole.

ENEE 398 Honors Research Project (1-3) Completion of all lower-division technical courses in the EE curriculum. See above note.

ENEE 407 Microwave-circuits Laboratory (2) One lecture and three lab hours per week. Prerequisites: ENEE 305 and ENEE 381 and completion of all lower-division technical courses in the EE curriculum. See above note. Experiments concerned with circuits constructed from microwave components providing practical experience in the design, construction and testing of such circuits. Projects include microwave filters and S-parameter design with applications of current technology.

ENEE 412 Advanced Electronics (3) Prerequisite: ENEE 314 and completion of all lower-division technical courses in the EE curriculum. See above note. Design and analysis of tuned circuits, oscillators, VCO'S, phase-locked loops, multipliers, modulators and A/D converters and their application in telemetry, communication and instrumentation.

ENEE 413 Electronics Laboratory (2) One lecture and three laboratory hours per week. Prerequisites: ENEE 305 and ENEE 314 and completion of all lower-division technical courses in the EE curriculum. See above note. The specification, design and testing of basic electronic circuits and practical interconnections. Emphasis on design with discrete solid state and integrated circuit components for both analog and digital circuits.

ENEE 418 Projects in Electrical Engineering (1-3) Hours to be arranged. Prerequisites: permission of instructor and department and completion of all lower-division technical courses in the EE curriculum. See above note. Theoretical and experimental projects. May be taken for repeated credit up to a total of 5 credits.

ENEE 420 Communication Systems (3) Prerequisite: ENEE 324 and completion of all lower-division technical courses in the EE curriculum. See above note. Fourier series, Fourier transforms and linear system analysis, random signals, autocorrelation functions and power spectral densities, analog communication systems: amplitude modulation, single-sideband modulation, frequency and phase modulation, sampling theorem and pulse-amplitude modulation, digital communication systems: pulse-code modulation, phase-shift keying, differential phase shift keying, frequency shift keying, performance of analog and digital communication systems in the presence of noise.

ENEE 421 Information Theory and Coding (3) Prerequisite: ENEE 324 and completion of all lower-division technical courses in the EE curriculum. See above note. Definition of information and entropy, Memoryless and Markov sources; source coding, Kraft and MacMillan inequalities, Shannon's first theorem, Hoffman Codes, Channels, Mutual Information, and Capacity, Shannon's Noisy Channel Coding Theorem, Error Correcting Codes.

ENEE 425 Digital Signal Processing (3) Prerequisite: ENEE 322 and completion of all lower-division technical courses in the EE curriculum. See above note. Sampling as a modulation process, aliasing, the sampling theorem, the Z-transform and discrete-time system analysis, direct and computer-aided design of recursive and nonrecursive digital filters, the Discrete Fourier Transform (DFT) and Fast Fourier Transform (FFT), digital filtering using the FFT, analog-to-digital and digital-to analog conversion, effects of quantization and finite-word-length arithmetic.

ENEE 426 Communication Networks (3) Prerequisite: Consent of department and completion of all lower division technical courses in the EE curriculum. See above note. The main design issues associated with ordinary, single-user, point-to-point communication systems and their juxtaposition to those involved in multi-user systems such as computer networks, satellite systems, radio nets, and general communication networks. Application of analytical tools of queueing theory to design problems in such networks. Review of proposed architectures and protocols.

ENEE 434 Introduction to Neural Networks and Signals (3) Prerequisite: ENEE 204 or 300 and completion of all lower division technical courses in the EE curriculum. See above note. Introduction in the generation and processing of bioelectric signals including structure and function of the neuron, membrane theory, generation and propagation of nerve impulses, synaptic mechanisms, transduction and neural coding of sensory events, central nervous system processing of sensory information and correlated electrical signals, control of effector organs, muscle contraction and mechanics, and models of neurons and neural networks.
course in

ENEE 435 Electrodes and Electrical Processes in Biology and Medicine (3) Prerequisite: ENEE 204 or 300 and completion of all lower-division technical courses in the EE curriculum. See above note. Techniques for recording biological signals such as brain, muscle and cardial electrical potentials, membrane theory, half-cell potentials, liquid junction potentials, polarization of electrodes, biological and medical instrumentation, and applications in the design of cardial pacemakers, or a similar case study.

ENEE 438 Topics in Biomedical Engineering (1-3) Prerequisite: Permission of the instructor and completion of all lower-division technical courses in the EE curriculum. See above note. May be taken for repeated credit. The content may vary from semester to semester. Selected topics of current interest from such areas as bioelectric systems, modeling instrumentation, automated diagnostic, health-care delivery, etc. Repeatable to a maximum of 9 hours.

ENEE 440 Microprocessors (3) Prerequisite: ENEE 250 and completion of all lower-division technical courses in the EE curriculum. See above note. Microprocessor architectures, instruction sets, assembly language programming, memory organization, I/O interfacing (programmed, DMA, interrupt), special interfaces, (A/D and D/A converters, keyboard, display, floppy disc, etc.)

ENEE 442 Software Engineering (3) Prerequisites: ENES 240, ENEE 250 or equivalent and completion of all lower-division technical courses in the EE curriculum. See above note. Architectural aspects of software engineering. Machine language and machine structure; assembly language and assemblers, macro-language and macro-processors, loaders and linkers, programming languages and language structure, compilers and interpreters, operating systems.

ENEE 444 Logic Design of Digital Systems (3) Prerequisite: ENEE 250 and completion of all lower-division technical courses in the EE curriculum. See above note. Review of switching algebra: gates and logic modules, map simplification techniques, multiple-output systems, memory elements and sequential systems, large switching systems, iterative networks, sample designs, computer oriented simplification algorithms, state assignment, partition techniques, sequential system decompositions.

ENEE 445 Computer Laboratory (2) Prerequisites: ENEE 305 and ENEE 444 and completion of all lower-division technical courses in the EE curriculum. See above note. One lecture and three lab hours per week. Hardware oriented experiments providing practical experience in the design, construction, and checkout of components and interfaces for digital computers and data transmission systems. Projects include classical design techniques and applications of current technology.

ENEE 446 Digital Computer Design (3) Prerequisite: ENEE 250 and completion of all lower-division technical courses in the EE curriculum. See above note. Essential elements of the hardware design of digital computers. Arithmetic and logic units, adders, multipliers, dividers, logic and shifting operations, floating point arithmetic. Memory organization, design of a basic computer instruction set, bus structure, fetch-execute microoperations, hard-wired control unit, microprogrammed control unit, index registers, indirect addressing, interrupt operation, direct memory access. Organization of commercially available computers. No student will be allowed credit for both CMSC 410 and ENEE 446.

ENEE 450 Discrete Structures (3) Prerequisite: ENES 240 or equivalent and completion of all lower-division technical courses in the EE curriculum. See above note. Review of set algebra including relations, partial ordering and mappings. Algebraic structures including semigroups and groups. Graph theory including trees and weighted graphs. Boolean algebra and propositional logic. Applications of these structures to various areas of computer engineering.

ENEE 460 Control Systems (3) Prerequisite: ENEE 322 and completion of all lower division technical courses in the EE curriculum. See above note. Mathematical models for control system components. Transform and time domain methods for linear control systems. Introductory stability theory. Root locus, Bode diagrams and Nyquist plots. Design specifications in the time and frequency domains. Compensation design in the time and frequency domain. Introduction to sampled data systems. Introduction to computer aided design of control systems.

ENEE 461 Control Systems Laboratory (2) Prerequisites: ENEE 305 and ENEE 460 and completion of all lower-division technical courses in the EE curriculum. See above note. One lecture and three lab hours per week. Projects to enhance the student's understanding of feedback control systems and to familiarize him with the characteristics and limitations of real control devices. Students will design, build and test servomechanisms, and will conduct analog and hybrid computer simulations of control systems.

ENEE 462 Systems, Control and Computation (3) Prerequisites: ENEE 300 or 304, and MATH 246 or consent of instructor and completion of all lower-division technical courses in the EE curriculum. See above note. Matrix algebra, state space analysis of discrete systems, state space analysis of continuous systems, computer algorithms for circuit analysis, optimization and system simulation.

ENEE 472 Transducers and Electrical Machinery (3) Prerequisite: ENEE 304 and completion of all lower-division technical courses in the EE curriculum. See above note. Electromechanical tranducers, theory of electromechanical systems, power and wideband transformers, rotating electrical machinery from the theoretical and performance points of view.

ENEE 473 Transducers and Electrical Machinery Laboratory (1) Corequisite: ENEE 472. Prerequisite: ENEE 305 and completion of all lower-division technical courses in the EE curriculum. See above note. Experiments on transformers, synchronous machines, induction motors, synchros, loudspeakers, other transducers.

ENEE 480 Fundamentals of Solid State Electronics (3) Prerequisite: ENEE 381 and completion of all lower-division technical courses in the EE curriculum. See above note. Review of Maxwell's equation, electromagnetic properties of dielectrics, introduction to quantum mechanics and quantum statistics, classical and quantum theory of metals, theory of semiconductors and semiconductor devices, principle of magnetic devices and selected topics.

ENEE 481 Antennas (3) Prerequisite: ENEE 381 and completion of all lower-division technical courses in the EE curriculum. See above note. Introduction to the concepts of radiation, generalized far field formulas; antenna theorems and fundamentals, antenna arrays, linear and planar arrays, aperture antennas, terminal impedance, propagation.

ENEE 483 Electromagnetic Measurements Laboratory (2) Prerequisites: ENEE 305 and ENEE 380 and completion of all lower-division technical courses in the EE curriculum. See above note. One lecture and three lab hours per week. Experiments designed to provide familiarity with a large class of micro-wave and optical components, techniques for interconnecting them into useful systems, and techniques of high frequency and optical measurements.

ENEE 487 Particle Accelerators, Physical and Engineering Principles (3) Prerequisites: ENEE 380 and PHYS 420, or consent of the instructor and completion of all lower-division technical courses in the EE curriculum. See above note. Sources of charged particles, methods of acceleration and focusing of ion beams in electromagnetic fields, basic theory, design, and engineering principles of particle accelerators.

ENEE 488 Topics in Electrical Engineering (3) Prerequisite: permission of the department and completion of all lower-division technical courses in the EE curriculum. See above note. Selected topics of current importance in electrical engineering.

ENEE 494 Solid State Devices (3) Prerequisite: ENEE 314 and completion of all lower-division technical courses in the EE curriculum. See above note. Introduction to semiconductor materials. p-n junctions, metal-semiconductor contacts; bipolar transistors, insulated gate field effect transistors, and related selected topics.

ENEE 495 Integrated Circuit Technology (3) Prerequisite: ENEE 494 and completion of all lower-division technical courses in the EE curriculum. See above note. Introduction to the fabrication technologies for integrated circuits including oxidation, diffusion, and photolithography; concepts of bipolar and MOS device design; layout of simple digital ICs.

ENEE 496 Lasers and Electro-optic Devices (3) Pre- or corequisite: ENEE 381. Completion of all lower-division technical courses in the EE curriculum. See above note. Optical resonators, fabry-perot etalon. Theory of laser oscillation, rate equations. Gaseous, solid state, semiconductor and dye laser systems. Electro-optic effects and parametric oscillators. Holography.

ENES — Engineering Science

ENES 101 Introductory Engineering Science (3) Basic languages of the engineer. Elements of graphic communication and analysis. Orthographic projection, conventions, graphs and curve-fitting. Introduction to Fortran computer language. Engineering orientation, selection of a major and career goals.

ENES 110 Statics (3) Corequisite: MATH 141. The equilibrium of stationary bodies under the influence of various kinds of forces. Forces, moments, couples, equilibrium, trusses, frames and machines, centroids, moment of inertia, beams, and friction. Vector and scalar methods are used to solve problems.

ENES 120 Noise Pollution (3) An introduction to the sources and the effects of noise pollution in the modern environment. Physical properties of sound and methods of measurement. Noise abatement methods. Public policy approaches to the control of environmental noise.

ENES 121 The Man-Made World (3) Introduction to technology created to enhance the operation of contemporary society. Study of the conception and operation of technological systems. Examples of systems for transportation, communications, information and energy supply. Concepts of modeling, feedback and stability applied to the analysis, interpretation and understanding of the behavior of technological systems and their impact on society.

ENES 131 Introduction to Flight (3) An elementary course in aeronautics appropriate for both science and non-science students. The elements of flight as exemplified by the flight of birds and the historical development of the airplane. Navigation and control of the aircraft, weather as it affects aviation, flight instruments, and the operation of the U.S. Civil Aviation System.

ENES 220 Mechanics of Materials (3) Prerequisites: MATH 141 and PHYS 161, and ENES 110. Distortion of engineering materials in relation to changes in stress or temperature. Geometry of internal strain and external displacement. Application to beams, columns, shafts, tanks, and other structural, machine and vehicle members.

ENES 221 Dynamics (3) Two hours of lecture and two hours of laboratory per week. Prerequisites: ENES 110, and MATH 141, and PHYS 161. Systems of heavy particles and rigid bodies at rest and in motion. Force- acceleration, work-energy and impulse-momentum relationships. Motion of one body relative to another in a plane and in space.

ENES 230 Introduction to Materials and their Applications (3) Prerequisite: ENES 110. Structure of materials, chemical composition, phase transformations, corrosion and mechanical properties of metals, ceramics, polymers and related materials. Material selection in engineering applications.

ENES 240 Engineering Computation (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: MATH 141. Introduction to the design and implementation of algorithms to solve engineering problems using digital computers. Analysis of problems fundamental to engineering design, construction and diagrammatic description of effective procedures for solving them and implementing and testing of these solutions in a common high-level engineering oriented language such as FORTRAN. Techniques for data input and storage, selection of relevant numerical and non-numerical methods for problem solutions, and the efficient ordering of data for meaningful output presentation.

ENES 388 Engineering Honors Seminar (1)

ENES 401 Technological Assessment (3) Intended for seniors not majoring in engineering. Not applicable as a technical elective for engineering majors. Analysis of assessing technology in terms of goals and resources. Public and private constraints, changes in objectives and organization. Applications to engineering technology.

ENES 405 Power and the Environment (3) Intended for seniors not majoring in engineering. Not applicable as a technical elective for engineering majors. An introduction to the power needs of society. The interrelationship between man's use of energy and the effect on the eco-system. Introduction to the techniques of power production with special emphasis on nuclear-fueled power plants.

ENES 414 Solar Energy Applications in Buildings (3) Prerequisite: PHYS 262 or permission of both department and instructor. Methods of utilizing solar energy to provide heating, cooling, hot water, and electricity for buildings; survey of related techniques for reducing energy consumption in buildings. Solar collectors, heating and cooling systems, water heaters, energy storage, solar cells, solar thermal power systems. Quantitative evaluation of system efficiencies, economics of solar energy utilization, structural and esthetic integration of solar collectors and system components into building designs.

ENES 473 Principles of Highway and Traffic Engineering (3) Prerequisite: permission of both department and instructor. Designed to assist the non-engineer in understanding highway transportation systems. A survey of the fundamentals of traffic characteristics and operations. Study of the methods and implementation of traffic control and regulation. An examination of highway design procedures, and the role of traffic engineering in transportation systems safety improvements.

ENES 508 Engineering Professional Development (2) Prerequisite: B.S. in engineering or permission of both department and instructor. Subjects as announced. Review and extension of subject areas covered at the undergraduate level. Preparation for EIT examination, licensing, and other professional requirements. Not applicable towards a graduate degree.

ENFP — Engineering, Fire Protection

ENFP 251 Introduction to Fire Protection Engineering (3) The social, economic, environmental and legal dimensions of the fire problem. The theoretical and engineering principles of basic fire phenomena. Technological assessment of urban fire protection utilizing operations research and systems engineering procedures.

ENFP 290 Fire Protection Fluids (3) Fluid flow principles for fire protection systems. Hydrostatic and hydrodynamic problem associated with water supply systems. Calculation methods, techniques and procedures for hydraulically designed distribution networks to meet prescribed conditions of adequacy and reliability of the total system.

ENFP 310 Fire Protection Systems Design I (3) Prerequisite: ENFP 290. Study of aqueous suppression system agents and their application to selected fire protection problems. Examination of specifications, code criteria, published criteria and research utilized in the engineering design of aqueous agent suppression systems. Application of hydraulic theory to a range of design considerations. Problem calculations based upon student prepared design layouts.

ENFP 312 Heat Transfer Applications in Fire Protection (3) Prerequisites: CMSC 110 and ENES 240, or ENME 320 and ENME 217. The principles of heat transfer. Application of the governing equations for conduction, convection and radiation heat transfer to fire protection problems. Analysis of the concepts of combustion with the chemical and physical components. Discussion and study of ignition, propagation and explosion phenomena.

ENFP 315 Fire Protection Systems Design II (3) Prerequisites: ENFP 290, and ENFP 310. Study of gaseous and particulate fire suppression systems. Examination and evaluation of code criteria, performance specifications and research. Application of fluid theory to the design process and the calculation procedures for gaseous particulate fire suppression systems. An integrated fire protection systems design project. Functional analysis and design of detection systems.

ENFP 320 Pyrometrics of Materials (3) Analysis and study of characteristics of materials, and material assemblies related to flame spread, fuel contribution, combustibility and smoke development. Analysis of fuel geometry and configuration to fire severity. Procedures of laboratory analysis, determination and modeling.

ENFP 398 Honors Research Project (1-3)

ENFP 411 Fire Protection Hazard Analysis (3) Prerequisites: ENFP 251, and ENFP 315. Appraisal and measurement of fire safety. Application of systems analysis, probability theory, engineering economy, and risk management in the identification and synthesis of components of fire protection engineering. Methods for the development of criteria for the design, evaluation and assessment of fire safety or component hazards.

ENFP 415 Fire Dynamics (3) Prerequisites: ENCH 300 or ENME 320, and ENCE 330 or ENME 342, and ENFP 312 or permission of department. Introduction to premixed and diffusion flame, ignition, flame spread and rate of burning, fire plumes, flame radiation.

ENFP 416 Problem Synthesis and Design (3) Senior standing. Techniques and procedures of problem orientation and solution design utilizing logical and numerical procedures. Student development of research projects in selected areas.

ENFP 421 Functional and Life Safety Analysis (3) Prerequisites: ENFP 320, and ENFP 315. The function and life safety components of buildings. Analytical concepts and research related to modular loss analysis. The physical and psychological variables of fire casualties using techniques of system analysis. Current research related to egress and smoke movement. Performance criteria of building and fire prevention codes.

ENFP 489 Special Topics (3) Prerequisite: permission of department. Repeatable to 6 credits. Selected topics of current importance of fire protection.

ENGL — English

ENGL 001 Basic Reading (3) Practice in reading college level expository texts with a focus on comprehension, vocabulary development, and study skills. Open only to Individual Admit students. The course does not carry credit towards any degree at the University.

ENGL 101 Introduction to Writing (3) An introductory course in expository writing.

ENGL 102 Literature and Composition (3) Open to students who have passed or are exempted from ENGL 101. Further practice in writing, along with readings in the short story, novel, poetry, and drama.

ENGL 201 World Literature (3) Homer to the Renaissance; foreign classics being read in translation.

ENGL 202 World Literature (3) Shakespeare to the present, foreign classics being read in translation.

ENGL 205 Introduction to Shakespeare (3) Reading of selected representative plays including the major tragedies. Recommended for non-majors.

ENGL 211 English Literature From the Beginnings to 1800 (3)

ENGL 212 English Literature From 1800 to the Present (3)

ENGL 221 American Literature: Beginning to 1865 (3)

ENGL 222 American Literature: 1865 to Present (3)

ENGL 234 Introduction to Afro-American Literature (3) A survey of Black American literature from the late eighteenth century to the present.

ENGL 240 Introduction to Literary Forms: Fiction, Poetry, Drama (3) Readings in the novel, short story, poetry and drama. Not open to students who have credit for ENGL 102.

ENGL 241 Introduction to the Novel (3)

ENGL 242 Fact and Fiction: Forms of Non-Fictional Prose (3) Contemporary and historical works in some of the major genres of non-fiction: biography, ecology, science writing, editorial, cultural commentary. The purposes of non-fiction (information, persuasion, analysis and commentary), the research and writing methods of non-fiction writers, and the impact and value of non-fiction works in society.

ENGL 243 Introduction to Poetry (3)

ENGL 244 Introduction to Drama (3) A survey of the basic literature of drama from the classical Greeks to modern times.

ENGL 245 Introduction to Film As Literature (3) Primary attention is on the film as a narrative medium, but other literary models will be examined.

ENGL 246 The Short Story (3)

ENGL 247 Literature of Fantasy (3) Reading and analysis of various works of non-realistic literature broadly termed "fantasy."

ENGL 250 Women in Literature (3) Images of women in literature by and about women.

ENGL 260 Introduction to Folklore (3) History, theory and genres of folklore. Not open to students who have credit in ENGL 360.

ENGL 270 Introduction to English Honors (3) Intensive study of a limited number of works drawn from five major genres (drama, narrative poetry, lyric poetry, prose fiction, prose non-fiction). An introduction for the beginning honors student to the major genres, literary backgrounds, chronological divisions and methods of approaching English and American literature. Required for graduation with honors.

ENGL 274 Literature for Children (3) Analysis of nineteenth and twentieth century classics of the genre. Relation of this literature to the forming of future literary perceptions.

ENGL 278 Special Topics in Literature (3) Repeatable to a maximum of 9 hours.

ENGL 281 Standard English Grammar, Usage, and Diction (3) The basic structure of written English including parts of speech, sentence patterns, standard punctuation, diction, and usage.

ENGL 291 Intermediate Writing (3) Writing essays, the revision process, and editing techniques.

ENGL 294 Introduction to Creative Writing (3) Additional prerequisite: sophomore standing

ENGL 296 Beginning Fiction Workshop (3) Introduction to different aspects of the craft of fiction, such as narration, description, and dramatic development. Models taken from the entire range of the genre. Selected readings.

ENGL 297 Beginning Poetry Workshop (3) Introduction to different aspects of the craft of poetry, such as image, metaphor, rhythm, tone, and form. Models taken from the range of genre. Selected readings.

ENGL 300 and 400 level course prerequisites: any two freshman or sophomore English courses with the exception of ENGL 293 and ENGL 294

ENGL 301 Critical Methods in the Study of Literature (3) An introduction to the techniques of literary analysis and a brief survey of the most common approaches to literature. Required of all English and American literature majors.

ENGL 302 English Medieval Literature in Translation (3)

ENGL 304 The Major Works of Shakespeare (3) Students who have credit for ENGL 403 or 404 cannot receive credit for ENGL 304.

ENGL 305 Shakespeare and His Contemporaries: An Introduction (3) An introduction to the plays of Shakespeare and those of several of his contemporaries. The course emphasizes a reading of eight to ten plays in the context of the development of the drama in England and of the pertinent Elizabethan theatrical, social, intellectual, and political circumstances. Because the course includes six of the plays of Shakespeare normally taught in ENGL 405, students who take ENGL 305 may not take ENGL 405. They may take ENGL 403, 404, 450, 451.

ENGL 310 Medieval and Renaissance British Literature (3) For English and English education majors only. Not open to students who have completed ENGL 211 or ENGL 212. A perspective on the cultural attitudes and values that separate the Middle Ages from the Renaissance, highlighting the changing role and purpose of the writer. Major works and authors include Beowulf, Chaucer, Spenser, and Sidney.

ENGL 311 Baroque and Augustan British Literature (3) For English and English education majors only. An intensive study of major works of seventeenth- and eighteenth-century English literature exploring the variety of artistic ideas and techniques of the period.

ENGL 312 Romantic to Modern British Literature (3) For English and English education majors only. An intensive study of major works of nineteenth- and twentieth-century English literature.

ENGL 313 American Literature (3) For English and English education majors only. Not open to students who have completed ENGL 221 or ENGL 222. A detailed study of selected major texts of American literature from the 17th to the 20th century, including women's literature, black literature, and literature from various regions of the century.

ENGL 320 English Romantic Literature (3) Prerequisite: two college-level literature courses. Credit will be granted for only one of the following: ENGL 320 and ENGL 420 or ENGL 320 and ENGL 421. Survey of fiction, poetry, and criticism. Emphasis on shifts in thinking from rationalism of the Enlightenment to the romanticism of the nineteenth century.

ENGL 345 Twentieth Century Poetry (3) A one-semester survey course in British and American poetry from Yeats and Robinson to the present. Special emphasis on Yeats, Pound, Eliot, Williams, Roethke, and Lowell. Not open to students who already have credit for ENGL 445 or 446.

ENGL 348 Literary Works By Women (3) The context, form, style and meaning of literary works by women. Repeatable to a maximum of six credits when content differs.

ENGL 361 Medieval Literary Modes and Modern Narrative (3) Literary patterns characteristic of medieval myth, epic, and romance, their continuing vitality in modern works, and links between Medieval works like "The Prose Edda" "Beowulf", "The Morte D'Arthur" "The Volsunga Saga" and "Grettis Saga" and modern narratives like Tolkien's "The Lord of the Rings"

ENGL 369 Honors Seminar: Major Traditions (4-S) Prerequisite: permission of the director of English honors. Intensive study of major English and American literary classics in their generic context of narrative and lyric poetry, drama, prose fiction and non-fiction from the beginnings to the present.

ENGL 370 Junior Honors Conference (1) Prerequisite: candidacy for honors in English. Preparation for writing the senior honors project.

ENGL 371 Senior Honors Conference (1) Prerequisite: candidacy for honors in English. Presentation and discussion of senior honors projects.

ENGL 373 Honors Thesis (3) Prerequisite: candidacy for honors in English. Research and writing of senior honors project. Strongly recommended for students planning graduate work.

ENGL 378 Independent Research in English (1-6) Prerequisite: consent of instructor. Designed to provide qualified majors in English an opportunity to pursue specific English readings under the supervision of a member of the department. Repeatable to a maximum of 6 credits.

ENGL 379 Special Topics in Literature (3) (English majors may not count credits earned in this course toward the total required for the major.) Repeatable to a maximum of 9 hours if the content is different.

ENGL 380 Internship (3-6) Pre-or corequisite: ENGL 381 or 382, and consent of department. The English Department's internship program. Preprofessional experience in writing and editing in a variety of fields.

ENGL 381 MGA Legislative Seminar (3) Prerequisite: consent of department. Classroom analysis component of the Maryland General Assembly internship program.

ENGL 382 Internship Seminar: Corporate Business (3) Prerequisite: consent of the department. Classroom analysis component of the departmental internship program in corporate business.

ENGL 384 Concepts of Grammar (3) Introduction to the basic units of grammatical description, motivation for and nature of constituent structure and syntactic categories, fundamental grammatical concepts employed in the teaching and learning of languages.

ENGL 385 English Semantics (3) An introductory study of meaning in language and paralanguage. General semantics, kinesics, linguistic relativity and recent developments in linguistic semantics.

ENGL 391 Advanced Composition (3) Prerequisite: 56 hours of college credit. An advanced composition course with emphasis on clarity and logic of construction in the writing and revision of short papers on topics related to the student's major, written in a style for the non-specialized reader. A research exercise coordinated with the student's discipline is required.

ENGL 392 Advanced Composition: Pre-Law (3) Techniques of argumentation and persuasion. Intensive practive to help writers achieve stylistic flexibility and correctness.

ENGL 393 Technical Writing (3) Prerequisite: satisfactory completion of 56 credits, which must include ENGL 101 or equivalent. The writing of scientific papers and reports. This course or ENGL 391 is required of students who entered the University in Summer 1978 or thereafter, unless exempt by University regulations. Not open to students who have credit for ENGL 293.

ENGL 394 Business Writing (3) Intensive practice in the forms of written communication common in the business world--letters, memos, short reports, and proposals. Principles of rhetoric and effective style.

ENGL 395 Technical Writing: Pre-Medical (3) Focus on accommodating technical material and empirical studies to lay audiences, and helping writers to achieve stylistic flexibility and correctness.

ENGL 396 Intermediate Fiction Workshop (3) Prerequisite: consent of instructor. Instruction in and development of basic fiction-writing skills. The process of revision, and the writing of longer projects such as stories, novellas, and novels. Voice, style and subject. Intensive reading and discussion of modern and contemporary fiction.

ENGL 397 Intermediate Poetry Workshop (3) Prerequisite: consent of instructor. Instruction in and development of basic writing skills. The process of revision. Voice, style, and subject. Intensive reading and discussion of modern and contemporary poetry within the context of the tradition.

ENGL 399 Senior Seminar (3) Limited to graduating English majors; to be taken in the last year and preferably the last semester of the undergraduate program; normally following completion of the core courses. Topics will vary each semester; most will be interdisciplinary or will cross historical periods. The course will provide a seminar experience in material or methodologies not otherwise available to the major.

ENGL 402 Chaucer (3)

ENGL 403 Shakespeare (3) Early period -- histories and comedies

ENGL 404 Shakespeare (3) Late periods -- tragedies and romances

ENGL 407 Literature of the Renaissance (3)

ENGL 410 Edmund Spenser (3)

ENGL 412 Literature of the Seventeenth Century, 1600-1660 (3)

ENGL 414 Milton (3)

ENGL 415 Literature of the Seventeenth Century, 1660-1700 (3)

ENGL 416 Literature of the Eighteenth Century (3) Age of Pope and Swift

ENGL 417 Literature of the Eighteenth Century (3) Age of Johnson and the Preromantics

ENGL 418 Major British Writers (3) Two writers studied intensively each semester.

ENGL 419 Major British Writers (3) Two writers studied intensively each semester.

ENGL 420 Literature of the Romantic Period I (3) First generation: Blake, Wordsworth, Coleridge, et al. Credit will not be allowed for both ENGL 320 and 420 or for ENGL 320 and ENGL 421.

ENGL 421 Literature of the Romantic Period (3) Second generation: Keats, Shelly, Byron, et al. Credit will not be allowed for both ENGL 320 and ENGL 420 or for ENGL 320 and ENGL 421.

ENGL 422 Literature of the Victorian Period (3) Early years

ENGL 423 Literature of the Victorian Period (3) Middle years

ENGL 424 Late Victorian and Edwardian Literature (3) A study of the literary movements and techniques which effected the transition from Victorian to modern literature.

ENGL 425 Modern British Literature (3) An historical survey of the major writers and literary movements in English prose and poetry since 1900.

ENGL 430 American Literature, Beginning to 1810, the Colonial and Federal Periods (3)

ENGL 431 American Literature, 1810 to 1865, the American Renaissance (3)

ENGL 432 American Literature, 1865 to 1914, Realism and Naturalism (3) Prerequisite: two college-level literature courses

ENGL 433 American Literature, 1914 to the Present, the Modern Period (3)

ENGL 434 American Drama (3)

ENGL 435 American Poetry: Beginning to the Present (3)

ENGL 436 The Literature of American Democracy (3)

ENGL 437 Contemporary American Literature (3) A survey of the poetry, prose, and drama written in America in the last decade.

ENGL 438 Major American Writers (3) Two writers studied intensively each semester.

ENGL 439 Major American Writers (3) Two writers studied intensively each semester.

ENGL 440 The Novel in America to 1910 (3)

ENGL 441 The Novel in America Since 1910 (3)

ENGL 442 Literature of the South (3) A historical survey from eighteenth-century beginnings to the present.

ENGL 443 Afro-American Literature (3) An examination of the literary expression of the Negro in the United States, from its beginning to the present.

ENGL 445 Modern British and American Poetry (3) Prerequisite: permission of instructor required for students with credit in ENGL 345. A study of the formation of the "Modern Tradition" in British and American poetry, exploring the distinctive energy and consciousness in the poets of the early twentieth century (1896-1930). Special emphasis on Hopkins, Yeats, Pound, Eliot, and Stevens. Collateral readings in essays on modern poetics, and in other poets of the period.

ENGL 446 Contemporary British and American Poetry (3) Prerequisite: Permission of instructor required for students with credit in ENGL 345. A study of British and American poetry from the Depression to the present. Special emphasis on Auden, Williams, Dylan Thomas, Theodore Roethke, Robert Lowell. A more general study of the work of some of these: Berryman, Jarrell, Fuller, Bishop, Wright, Kinnell, Larkin and including the projectivists, the beats, and the present scene.

ENGL 447 Satire (3) An introduction to English and American satire from Chaucer to the present.

ENGL 449 Playwriting (3)

ENGL 450 Elizabethan and Jacobean Drama (3) Beginnings to Marlowe

ENGL 451 Elizabethan and Jacobean Drama (3) Jonson to Webster

ENGL 452 English Drama From 1660 to 1800 (3)

ENGL 453 Literary Criticism (3)

ENGL 454 Modern Drama (3)

ENGL 455 The English Novel (3) Eighteenth century

ENGL 456 The English Novel (3) Nineteenth century

ENGL 457 The Modern Novel (3)

ENGL 461 Folk Narrative (3) Studies in legend, tale and myth

ENGL 462 Folksong and Ballad (3)

ENGL 463 American Folklore (3) An examination of American folklore in terms of history and regional folk cultures Exploration of collections of folklore from various areas to reveal the difference in regional and ethnic groups as witnessed in their oral and literary traditions

ENGL 464 Afro-American Folklore and Culture (3) An examination of the culture of the Negro in the United States in terms of history (antebellum to the present) and social changes (rural to urban) Exploration of aspects of Negro culture and history via oral and literary traditions and life histories

ENGL 465 Urban Folklore (3) An examination of the folklore currently originating in white, urban, American culture

ENGL 466 Arthurian Legend (3) Development of the Arthurian legend of heroism and love in English literature from medieval to modern times.

ENGL 476 Modern Fantasy and Science Fiction (3) Major works of fantasy and science fiction since the mid-eighteenth century, emphasizing their continuity and their relationships to philosophical speculation, scientific discovery, literary history and cultural change

ENGL 477 Studies in Mythmaking (3) Major themes, figures, and configurations of northern European mythology, examining the value of the mythic mode of thought in a scientific era

ENGL 478 Selected Topics in English and American Literature Before 1800 (1-3)

ENGL 479 Selected Topics in English and American Literature After 1800 (3)

ENGL 482 History of the English Language (3)

ENGL 483 American English (3)

ENGL 484 Advanced English Grammar (3) Credit may not be granted in both ENGL 484 and LING 402

ENGL 485 English Phonology and Phonetics (3) An overview of the sound system of English, surveying traditional methods of analysis as well as contemporary feature analysis Practice in analysis and transcription of sound

ENGL 486 Introduction to Old English (3) An introduction to the grammar, syntax, and phonology of Old English Selected readings from Old English prose and poetry

ENGL 489 Special Topics in English Language (3) Studies in topics of current interest, repeatable to a maximum of 9 hours

ENGL 493 Advanced Expository Writing (3)

ENGL 494 Editing and Document Design (3) Prerequisite ENGL 391, ENGL 393 or equivalent Principles of general editing for clarity, precision and correctness Applications of the conventions of grammar, spelling, punctuation and usage, and organization for logic and accuracy Working knowledge of the professional vocabulary of editing applied throughout the course For English majors only

ENGL 496 Advanced Fiction Workshop (3) Prerequisite consent of instructor Student criticism of student stories or chapters of novels-in-progress Craft, execution and technique Intensive reading of anthologies and individual works in modern and contemporary fiction Theoretical and critical works that help to define and analyze the context of the tradition

ENGL 497 Advanced Poetry Workshop (3) Prerequisite consent of instructor Student criticism of student work within the context of craft, technique, and execution Relationship to Anglo-American and International Post-Modernist poetry

ENGL 498 Creative Writing (3)

ENGL 499 Advanced Creative Writing (3)

ENMA — Engineering, Materials

ENMA 300 Materials Science and Engineering (3) Prerequisite ENES 220 Credit will be granted for only one of the following ENMA 300 or ENME 300 Basic principles, nature and properties of engineering materials Processes and methods to manufacture and usefully apply engineering materials Fabrication techniques for metals, polymers, and refractories

ENMA 301 Materials Engineering Laboratory (1) Two hours of laboratory per week Pre- or corequisite ENMA 300 Credit will be granted for only one of the following ENMA 301 or ENME 301 Fatigue, tensile and impact testing, heat treatment and hardenability, structure and properties of steels, case studies

ENMA 462 Deformation of Engineering Materials (3) Prerequisite ENES 230 or permission of both department and instructor Relationship of structure to the mechanical properties of materials Elastic and plastic deformation, microscopic yield criteria, state of stress and ductility Elements of dislocation theory, work hardening, alloy strengthening, creep, and fracture in terms of dislocation theory
course in

ENMA 463 Chemical, Liquid and Powder Processing of Engineering Materials (3) Prerequisite ENES 230 or permission of both department and instructor Methods and processes used in the production of primary metals The detailed basic principles of beneficiation processes, pyrometallurgy, hydrometallurgy, electrometallurgy, vapor phase processing and electroplating Liquid metal processing including casting, welding, brazing and soldering Powder processing and sintering Shapes and structures produced in the above processes

ENMA 464 Environmental Effects on Engineering Materials (3) Prerequisite ENES 230 or permission of both department and instructor Introduction to the phenomena associated with the resistance of materials to damage under severe environmental conditions Oxidation, corrosion, stress corrosion, corrosion fatigue and radiation damage are examined from the point of view of mechanism and influence on the properties of materials. Methods of corrosion protection and criteria for selection of materials for use in radiation environments

ENMA 470 Structure and Properties of Engineering Materials (3) A comprehensive survey of the atomic and electronic structure of solids with emphasis on the relationship of structure to the physical and mechanical properties

ENMA 471 Physical Chemistry of Engineering Materials (3) Equilibrium multicomponent systems and relationship to the phase diagram Thermodynamics of polycrystalline and polyphase materials Diffusion in solids, kinetics of reactions in solids

ENMA 472 Technology of Engineering Materials (3) Relationship of properties of solids to their engineering applications Criteria for the choice of materials for electronic, mechanical and chemical properties Particular emphasis on the relationships between structure of the solid and its potential engineering application

ENMA 473 Processing of Engineering Materials (3) The effect of processing on the structure of engineering materials Processes considered include refining, melting and solidification, purification by zone refining, vapor phase processing, mechanical working and heat treatments

ENMA 495 Rheology of Engineering Materials (3) Prerequisite ENES 230 or permission of both department and instructor Credit will be granted for only one of the following ENMA 495 or ENCH 495 Study of the deformation and flow of engineering materials and its relationship to structural type Elasticity, viscoelasticity, anelasticity and plasticity of single phase and multiphase materials

ENMA 496 Polymeric Engineering Materials (3) Prerequisite ENES 230 Credit will be granted for only one of the following ENMA 496 or ENCH 496 A comprehensive summary of the fundamentals of particular interest in the science and applications of polymers Polymer single crystals, transformations in polymers, fabrication of polymers as to shape and internal structure

ENME — Engineering, Mechanical

ENME 201 Mechanical Engineering Project (1) The disassembly and assembly of a mechanical device A written report describing the method of operation of the device with sketches and drawings illustrating the components Grading will be satisfactory-fail

ENME 205 Engineering Analysis and Computer Programming (3) Pre- or corequisite MATH 241 Continuation of computer programming techniques flowcharts, algorithms, and computer languages Introduction to numerical techniques and error analysis in solving for roots of equations, simultaneous equations, interpolation, numerical differentiation and integration, numerical solution of differential equations Applications to engineering problems

ENME 217 Thermodynamics (3) Prerequisites PHYS 262, and MATH 141 Properties, characteristics and fundamental equations of gases and vapors Work transfer and heat transfer first and second laws of thermodynamics, entropy, irreversibility, availability and the thermodynamics of mixtures

ENME 310 Mechanics of Deformable Solids (3) Prerequisite ENES 220 Introduction to the mechanics of engineering materials in three dimensions Concepts of stress, strain, generalized Hooke's law, and equilibrium of solids Modes of failure including plasticity, stability, fatigue, and fracture will be treated

ENME 311 Mechanics of Deformable Solids Laboratory (1) Corequisite ENME 310 A laboratory course in the mechanics of engineering materials Concepts of stress, strain, generalized Hooke's law, and equilibrium of solids Modes of failure including plasticity, stability, fatigue, and fracture will be treated

ENME 315 Intermediate Thermodynamics (3) Prerequisite ENME 217 Application of the first and second laws of thermodynamics in the analysis of basic heat engines, air compression and vapor cycles Heat sources in fossil fuels and nuclear fuels The thermodynamics of fluid flow

ENME 320 Thermodynamics (3) Prerequisites MATH 141, and PHYS 262 The properties characteristics and fundamental equations of gases and vapors Application of the first and second laws of thermodynamics in the analysis of basic heat engines, air compression vapor cycles Flow and non-flow processes for gases and vapors

ENME 321 Transfer Processes (3) Prerequisite ENME 342 Conduction by steady state and transient heat flow, laminar and turbulent flow free and forced convection, radiation, evaporation and condensation vapors Transfer of mass heat and momentum

ENME 342 Fluid Mechanics I (3) Prerequisite ENME 217 Fluid flow concepts and basic equations, effects of viscosity and compressibility Dimensional analysis and laws of similarity Flow through pipes and over immersed bodies Principles of flow measurement

ENME 343 Fluid Mechanics Laboratory (1) Two hours of laboratory per week Corequisite ENME 342 Measurement of fluid properties, determination of pressure drops in pipes and fittings, observation of fluid phenomena Experiment and demonstration of flow measurement techniques

ENME 360 Dynamics of Machinery (3) Prerequisites ENES 220, and ENES 221, and MATH 246 Dynamic characteristics of machinery with emphasis on systems with single and multiple degrees of freedom

ENME 381 Measurements Laboratory (3) Two hours of lecture and three hours of laboratory per week Prerequisites ENME 360, and ENEE 300 Required of juniors in mechanical engineering Measurements and measurement systems, application of selected instruments with emphasis on interpretation of results

ENME 398 Honors Research Project (1-3)

ENME 400 Machine Design (3) Two hours of lecture and two hours of laboratory per week Prerequisites ENME 310, and ENME 360 Corequisite ENME 401 Working stresses, stress concentration, stress analysis and repeated loadings Design of machine elements Kinematics of mechanisms

ENME 401 The Structure and Properties of Engineering Materials (3) Corequisite ENME 310 The nature and properties of engineering materials as related to their use in all phases of mechanical engineering will be studied Materials covered include metals, ceramics and glasses, polymer and composites

ENME 403 Automatic Controls (3) Prerequisites ENEE 300, and ENME 360 Senior standing Hydraulic, electrical, mechanical and pneumatic automatic control systems Open and closed loops Steady state and transient operation, stability criteria linear and non-linear systems Laplace transforms

ENME 404 Mechanical Engineering Systems Design (4) Two hours of lecture and six hours of laboratory per week Prerequisites ENME 400 or ENME 405 and senior standing in mechanical engineering Design of components that form a complete working system Engineering economics performance-cost studies optimization Engineering design practice through case studies Legal and ethical responsibility of the designer

ENME 405 Energy Conversion Design (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: senior standing in mechanical engineering. Application of thermodynamics, fluid mechanics and heat transfer to energy conversion processes. Design of engines, compressors, heat exchangers. Energy storage and fuel handling equipment.

ENME 408 Selected Topics in Engineering Design (3) Prerequisite: senior standing in mechanical engineering or permission of department. Repeatable to 6 credits if content differs. Creativity and innovation in design. Generalized performance analysis, reliability and optimization as applied to the design of components and engineering systems. Use of computers in design of multivariable systems.

ENME 410 Operations Research I (3) Prerequisite: senior standing in mechanical engineering. Applications of linear programming, queuing model, theory of games and competitive models to engineering problems.

ENME 411 Introduction to Industrial Engineering (3) Prerequisites: [ENME 300 and ECON 205] or permission of department. Design, improvement and installation of integrated systems of men, materials and equipment. Areas covered include industrial activities, plant layout and design, value analysis, engineering economics, quality and production control, methods engineering, industrial relations, etc.

ENME 412 Mechanical Design For Manufacturing and Production (3) Prerequisite: senior standing in engineering. The physical properties of materials. Review of key fundamental principles used in product design. Characterization of various classes of engineering materials. The types of manufacturing processes which can be applied to production of the design.

ENME 414 Computer-Aided Design (3) Prerequisites: ENME 205 and MATH 241 or equivalent. Introduction to computer graphics. Plotting and drawing with computer software. Principles of writing interactive software. The applications of computer graphics in computer-aided design. Computer-aided design project.

ENME 415 Engineering Applications of Solar Energy (3) Prerequisites: ENME 315, and ENME 321. Collection, storage and utilization of solar thermal energy. Conversion to electricity. Component and system modeling equations. Performance analysis. Systems design.

ENME 420 Energy Conversion (3) Prerequisite: ENME 320. Chemical heat, mechanical, nuclear and electrical energy conversion processes, cycles and systems. Direct conversion processes of fuel cells, thermionics and magneto hydromechanics.

ENME 422 Energy Conversion II (3) Prerequisite: ENME 315. Advanced topics in energy conversion. Direct conversion processes of fuel cells, solar cells, thermionics, thermoelectrics and magnetohydrodynamics.

ENME 423 Environmental Engineering (3) Prerequisites: ENME 321 and senior standing in mechanical engineering. Heating and cooling load computations. Thermodynamics of refrigeration. Low temperature refrigeration. Problems involving extremes of temperature, pressure, acceleration and radiation.

ENME 424 Thermodynamics II (3) Prerequisites: ENME 321 and senior standing. Applications to special systems, change of phase, low temperature. Statistical concepts, equilibrium, heterogeneous systems.

ENME 425 Internal Combustion Engines (3) Prerequisites: ENME 315 and ENME 321. Fundamentals underlying the design and operation of internal combustion engines. Aspects of fuels, lubricants, instrumentation, combustion and performance. The causes and control of air pollution.

ENME 442 Fluid Mechanics II (3) Prerequisites: ENME 342 and senior standing. Hydrodynamics with engineering applications. Stream function and velocity potential, conformal transformations, pressure distributions, circulation, numerical methods and analogies.

ENME 450 Mechanical Engineering Analysis For the Oceanic Environment (3) Junior standing. Characteristics of the marine environment which affect the design, operation and maintenance of mechanical equipment: effects of waves, currents, pressure, temperature, corrosion and fouling. Study of design parameters for existing and proposed mechanical systems used in marine construction, on shipboard, in search and salvage operations.

ENME 451 Mechanical Engineering Systems For Underwater Operations (3) Propulsion, control and environmental systems for submerged vehicles. Design of mechanical systems in support of diving and saturated living operations.

ENME 461 Dynamics II (3) Prerequisites: ENME 360; and differential equations and senior standing in mechanical engineering. Linear and non-linear plane and three-dimensional motion, moving axes, LaGrange's equation, Hamilton's principle, non-linear vibration, gyroscope, celestial mechanics.

ENME 462 Introduction to Engineering Acoustics (3) Prerequisite: MATH 246. Study of the physical behavior of sound waves. Introduction to terminology and instrumentation used in acoustics. Criteria for noise and vibration control. Some fundamentals underlying noise control and applications to ventilation systems, machine and shop quieting, office buildings, jet noise, transportation systems and underwater sound.

ENME 463 Mechanical Engineering Analysis (3) Prerequisite: MATH 246. Mathematical modeling of physical situations. Solution of problems expressed by partial differential equations. Application of Fourier series and integrals, Laplace transformation, Bessel functions, Legendre polynomials and complex problems in mechanical vibrations, heat transfer, fluid mechanics and automatic control theory.

ENME 464 Machine Design II (3) Prerequisite: ENME 400. The study of stress and strain as applied to engineering problems, stress and strain from a three dimensional point of view, theories of failure, residual stresses, dynamic loading, fatigue, environmental influence: temperature extremes, corrosive media. Case studies of design practices.

ENME 465 Introductory Fracture Mechanics (3) Senior standing in engineering. An examination of the concepts of fracture in members with pre-existing flaws. Emphasis is primarily on the mechanics aspects with the development of the Griffith theory and the introduction of the stress intensity factor, K, associated with different types of cracks. Fracture phenomena are introduced together with critical values of the fracture toughness of materials. Testing procedures for characterizing materials together with applications of fracture mechanics to design.

ENME 470 Finite Element Analysis (3) Prerequisites: ENME 310, and ENME 321. Basic concepts of the theory of the finite element method. Applications in solid mechanics and heat transfer.

ENME 473 Mechanical Design of Electronic Systems (3) Prerequisites: ENME 310, and ENME 360; and ENME 321. Design considerations in the packaging of electronic systems. Production of circuit boards and design of electronic assemblies. Vibration, shock, fatigue and thermal considerations.

ENME 475 Robotics (3) Prerequisites: ENME 360, and ENEE 300. Basic engineering principles in the design and analysis of robots. Industrial applications of robots.

ENME 480 Engineering Experimentation (3) One hour of lecture and five hours of laboratory per week. Senior standing in mechanical engineering. Theory of experimentation. Applications of the principles of measurement and instrumentation systems to laboratory experimentation. Experiments in fluid mechanics, solid mechanics and energy conversion. Selected experiments or assigned projects to emphasize planned procedure, analysis and communication of results, analogous systems and leadership.

ENME 481 Engineering Experimentation (3) One hour of lecture and four hours of laboratory per week. Senior standing in mechanical engineering. Theory of experimentation. Applications of the principles of measurement and instrumentation systems to laboratory experimentation. Experiments in fluid mechanics, solid mechanics and energy conversion. Selected experiments or assigned projects to emphasize planned procedure, analysis and communication of results, analogous systems and leadership.

ENME 488 Special Problems (3) Prerequisite: permission of department. Advanced problems in mechanical engineering with special emphasis on mathematical and experimental methods.

ENME 489 Special Topics in Mechanical Engineering (3) Prerequisite: permission of department. Repeatable to 6 credits with permission of advisor. Selected topics of current importance in mechanical engineering.

ENNU — Engineering, Nuclear

ENNU 215 Introduction to Nuclear Technology (3) Prerequisites: MATH 141, and PHYS 161. Engineering problems of the nuclear energy complex, including basic theory, use of computers, nuclear reactor design and isotopic and chemical separations.

ENNU 310 Environmental Aspects of Nuclear Engineering (3) Prerequisites: [MATH 241 or MATH 246 and PHYS 263] or permission of both department and instructor. Evaluation of environmental and safety aspects of nuclear power reactors. Calculations of radioactive decay, activation, and shielding, radiation monitoring. Biological effects of radiation, waste handling, siting, plant design and operations, as related to environment safety and licensing regulations.

ENNU 320 Nuclear Reactor Operation (3) Two hours of lecture and two hours of laboratory per week. Introduction to nuclear reactor operations. Outline of reactor theory. Nature and monitoring techniques of ionizing radiation; radiation safety. Reactor instrument response. Operation of The University of Maryland nuclear reactor.

ENNU 398 Honors Research Project (1-3)

ENNU 430 Radioisotope Power Sources (3) Prerequisite: ENNU 215 or permission of both department and instructor. Principles and theory of radioisotope power sources. Design and use of nuclear batteries and small energy conversion devices.

ENNU 435 Activation Analysis (3) Prerequisite: ENNU 215 or permission of both department and instructor. Principles and techniques of activation analysis involving neutrons, photons and charged particles. Emphasis placed upon application of this analytical technique to solving environmental and engineering problems.

ENNU 440 Nuclear Technology Laboratory (3) One hour of lecture and four hours of laboratory per week. Prerequisites: MATH 240 and PHYS 263. Techniques of detecting and making measurements of nuclear or high energy radiation. Radiation safety experiments. Both a sub-critical reactor and the swimming pool critical reactor are sources of radiation.

ENNU 450 Nuclear Reactor Engineering I (3) Prerequisites: [MATH 246, and PHYS 263] or permission of both department and instructor. Elementary nuclear physics, reactor theory, and reactor energy transfer. Steady-state and time-dependent neutron distributions in space and energy. Conduction and convective heat transfer in nuclear reactor systems.

ENNU 455 Nuclear Reactor Engineering II (3) Prerequisite: ENNU 450. General plant design considerations including radiation hazards and health physics, shielding design, nuclear power economics, radiation effects on reactor materials, and various types of nuclear reactor systems.

ENNU 460 Nuclear Heat Transport (3) Prerequisite: ENNU 450. Heat generation in nuclear reactor cores, conduction and transfer to coolants. Neutron flux distributions, fission and heat release. Steady and unsteady state conduction in fuel elements. Heat transfer to nonmetallic and metallic coolants. Heat transfer with phase change. Thermal design of reactor cores.

ENNU 461 Chemical Separation in the Nuclear Cycle Reactor Fuel (3) Prerequisite: ENNU 450 or permission of both department and instructor. An introduction to chemical and physical separation of the nuclear reactor fuel. Basic separation processes, reactor fuel fabrication, reactor chemistry problems and the handling and treatment of radioactive waste. Calculations of plant design and operation. Related safety issues.

ENNU 465 Nuclear Reactor Systems Analysis (3) Prerequisites: [MATH 246, and PHYS 263, and ENNU 455] or permission of department. Power reactor (BWR,PWR,HTGR) system design and analysis. System specifications and modes of operation. Plant documentation (PSAR,FSAR etc.). Piping and instrumentation drawings. Theory and application of pump and piping calculations. Steam power plant cycles and calculations. Steam plant equipment (turbines, heaters, condensers, etc.) analysis.

ENNU 468 Research (2-3) Prerequisite: permission of both department and instructor. Repeatable to 6 credits. Investigation of a research project under the direction of one of the staff members. Comprehensive reports are required.

ENNU 470 Introduction to Controlled Fusion (3) Prerequisite: senior standing in engineering or permission of both department and instructor. The principles and the current status of research to achieve controlled thermonuclear power production. Properties of ionized gases relating to confinement and heating. Concepts of practical fusion devices.

ENNU 480 Reactor Core Design (3) Prerequisite: ENNU 450 or permission of both department and instructor. Design of nuclear reactor cores based on a sequence of standard computer codes. Thermal and epithermal cross sections, multigroup diffusion theory in one and two dimensions and fine structure flux calculations using transport theory.

ENNU 490 Nuclear Fuel and Power Management (3) Prerequisites: [ENNU 460; and ENNU 480] or permission of both department and instructor. Physics and economics of the nuclear fuel cycle utilizing existing design codes. Mining, conversion, enrichment, fabrication, reprocessing processes. Effects of plutonium recycle, in-core shuffling, fuel mechanical design and power peaking on fuel cycle costs.

ENTM — Entomology

ENTM 100 Insects (3) A survey of the major groups of insects, their natural history, and their relationships with man and his environment.

ENTM 111 Beekeeping (2) First semester. A study of the life history, behavior and seasonal activities of the honeybee, its place in pollination of flowers with emphasis on plants of economic importance and bee lore in literature.

ENTM 205 Principles of Entomology (4) Three lectures and one two-hour laboratory period per week An introductory overview to the biology and diversity of insects Basic physiological ecological and behavioral processes that result in the dominance of insects in the animal kingdom The management of pest insect populations and the consequences of the strategies used to regulate insect pests A collection is required

ENTM 252 Agricultural Insect Pests (3) Two lectures and one two-hour laboratory period a week Prerequisite BOTN 101 or ZOOL 101 An introduction to the principal insect pests of fruit, vegetable, forage, and ornamental crops, with special reference to Maryland agriculture Not open to entomology majors

ENTM 303 International Pesticide Problems and Solutions (3) Prerequisite permission of instructor A global assessment of economic, environmental, legal, and social consequences of pests pesticides and alternative pest control methods. Case studies of the influence of legal action, government export and import policies, international aid, marketing practices, research and education, and human perceptions on pesticide use Emphasis on pest and pesticide problems in the Third World and progress in developing pest and pesticide management systems to solve these problems

ENTM 351 Introduction to Insect Population Management (3) Three lecture periods a week An introduction to the theory and practice of management of insect populations The course explores the development of all insect pest population suppression methods, as well as the management of insect populations beneficial to man The main theme of the course is how man can manipulate environmental components for the purpose of population regulation of insects, and the beneficial and harmful effects of these manipulations

ENTM 398 General Colloquium in Entomology (1) Prerequisite ENTM 205 or consent of instructor Presentation of original research by invited guest speakers, faculty, and graduate students No more than 1 credit hour of ENTM 398 may be applied to THE 120 credit hours needed for the Bachelor's degree

ENTM 399 Special Problems (1-2) Prerequisite ENTM 205 Permission of instructor Credit to be determined by the department Should be taken during the junior year Investigations of assigned entomological problems No more than 4 credit hours of ENTM 399 may be applied to THE 120 credit hours needed for the Bachelor's degree

ENTM 407 Entomology For Science Teachers (4) Summer Four lectures and four three-hour laboratory periods a week This course will include the elements of morphology, taxonomy and biology of insects using examples commonly available to high school teachers It will include practice in collecting, preserving, rearing and experimenting with insects insofar as time will permit

ENTM 412 Advanced Apiculture (3) One lecture and two three-hour laboratory periods a week Prerequisite ENTM 111 The theory and practice of apiary management Designed for the student who wishes to keep bees or requires a practical knowledge of bee management

ENTM 423 Insect Comparative Morphology (4) Two hours of lecture and six hours of laboratory per week Prerequisite ENTM 205 Morphology and anatomy of insects Comparison of structures using specimens from common orders to study the phylogenetic relationships and to form a basis for understanding insect classification systems

ENTM 424 Insect Diversity and Classification (4) One hour of lecture and six hours of laboratory per week Prerequisites ENTM 205, and ENTM 423 The techniques of collecting insects in the field and their classification into the latest hierarchical scheme Field trips will visit habitats throughout the state An insect collection is required

ENTM 432 Insect Physiology (4) Three hours of lecture and one three-hour laboratory per week Prerequisites ENTM 205, CHEM 233, and CHEM 243, or consent of instructor The physiology of different insect systems Hormonal basis of insect metamorphosis and reproduction

ENTM 451 Insect Pests of Agricultual Crops (4) Two lectures and two two-hour laboratory periods a week Prerequisite ENTM 205 The recognition, biology and control of insects injurious to fruit and vegetable crops, field crops and stored products

ENTM 452 Insecticides (2) Prerequisite consent of the department The development and use of contact and stomach poisons, fumigants and other important chemicals, with reference to their chemistry, toxic action, compatability and host injury Recent research emphasized

ENTM 453 Insect Pests of Ornamentals and Turf (3) Prerequisite ENTM 205 or consent of instructor Two lectures and one three-hour laboratory period a week The recognition, biology and control of insects and mites injurious to ornamental shrubs, trees, greenhouse crops, and turf Emphasis on pests of woody ornamental plants

ENTM 454 Principles of Plant Protection (2) One hour of lecture and two hours of laboratory per week Prerequisites ENTM 205 and permission of department Systematic assessment of the principles of plant protection and pest population management

ENTM 455 Urban Entomology (3) Two lectures and one three-hour laboratory period a week Prerequisite ENTM 421 or consent of instructor A study of the appearance, habits, life cycles and methods of control of pests of humans, pets and structures in the urban environment Field observations of professional pest control operations and a paper on a selected pest group are required

ENTM 472 Medical and Veterinary Entomology (4) Three lectures and one two-hour laboratory period a week Prerequisite ENTM 205 or consent of department A study of the morphology, taxonomy, biology and control of the arthropod parasites and disease vectors of man and animals The ecology and behavior of vectors in relation to disease transmission will be emphasized

FDSC — Food Science

FDSC 111 Contemporary Food Industry and Consumerism (3) Three lecture hours per week The role of the food processing industry in attempting to satisfy man's need for food Food quality nutritional, sensory, and compositional, conventional vs 'natural' organic foods, preservation and spoilage-role of chemical additives, synthetic and convenience foods, consumer protection, the food industry and the environment, future food sources

FDSC 398 Seminar (1) Presentation and discussion of current literature and research in food science

FDSC 399 Special Problems in Food Science (1-3) Prerequisite: approval of staff Designed for advanced undergraduates in which specific problems in food science will be assigned Four credit maximum per student

FDSC 412 Principles of Food Processing I (3) The principles of thermal processing including heat resistance of bacteria and bacterial spores, concepts of lethality, heat transfer, and thermal process calculations Advanced systems of thermal processing and packaging including aseptic applications

FDSC 413 Principles of Food Processing II (3) Three lectures per week A detailed study of food processing with emphasis on line and staff operations, including physical facilities, utilities, pre-and post-processing operations, processing line development and sanitation.

FDSC 421 Food Chemistry (3) Three lectures per week Prerequisite CHEM 113 The application of basic chemical and physical concepts to the composition and properties of foods Emphasis on the relationship of processing technology, to the keeping quality, nutritional value, and acceptability of foods

FDSC 422 Food Product Research and Development (3) Two lectures, and one laboratory per week Prerequisites FDSC 413, BCHM 461 or permission of instructor. A study of the research and development function for improvement of existing products and development of new, economically feasible and marketable food products. Application of chemical-physical characteristics of ingredients to produce optimum quality products, cost reduction, consumer evaluation, equipment and package development

FDSC 423 Food Chemistry Laboratory (2) Pre- or corequisite FDSC 421 Two laboratory per week Analysis of the major and minor constituents of food using chemical, physical and instrumental methods in concordance with current food industry and regulatory practices Laboratory exercises coincide lecture subjects in FDSC 421

FDSC 430 Food Microbiology (2) Two lectures per week Prerequisite MICB 200 or equivalent A study of microorganisms of major importance to the food industry with emphasis on food-borne outbreaks, public health significance, bioprocessing of foods and control of microbial spoilage of foods

FDSC 431 Food Quality Control (4) Three lectures and one laboratory per week Definition and organization of the quality control function in the food industry, preparation of specifications, statistical methods for acceptance sampling, in-plant and processed product inspection Instrumental and sensory methods for evaluating sensory quality, identity and wholesomeness and their integration into grades and standards of quality

FDSC 434 Food Microbiology Laboratory (2) Two laboratories per week Pre- or corequisite FDSC 430 A study of techniques and procedures used in the microbiological examination of foods

FDSC 442 Horticultural Products Processing (3) Two lectures and one laboratory per week Commercial methods of canning, freezing, dehydrating, fermenting, and chemical preservation of fruit and vegetable crops

FDSC 451 Dairy Products Processing (3) Two lectures and one laboratory per week Method of production of fluid milk butter cheese, condensed and evaporated milk and milk products and ice cream

FDSC 461 Technology of Market Eggs and Poultry (3) Two lectures and one laboratory per week A study of the technological factors concerned with the processing, storage, and marketing of eggs and poultry and the factors affecting their quality

FDSC 471 Meat and Meat Processing (3) Two lectures and one laboratory a week Prerequisite BCHM 461 or permission of instructor Physical and chemical characteristics of meat and meat products, meat processing, methods of testing and product development

FDSC 482 Seafood Products Processing (3) Two lectures and one laboratory a week Prerequisite BCHM 461 or permission of instructor The principal preservation methods for commercial seafood products with particular reference to the invertebrates Chemical and microbiological aspects of processing are emphasized

FMCD — Family and Community Development

FMCD 105 The Individual in the Family (3) Study of personality development within the family context Emphasis on identity and self-awareness

FMCD 200 Pre-professional Seminar (1) Prerequisite permission of department Introduction to the family, community, and management-consumer fields Consideration of professional opportunities

FMCD 201 Concepts in Community Development (3) Theory and practice of development in neighborhood national and international communities Models for community action program development and service delivery

FMCD 202 Methods for Family, Community and Management Studies (3) Introduction to the methods of the social and behavioral sciences employed in family, community and management-consumer studies The role of theory, the development of hypotheses, measurement, validity, data collection, and data analysis

FMCD 250 Decision Making in Families and Communities (3) Introduction to problem solving decision theory, and systems analysis, and their application to the practical problems facing families, human service organizations, and local communities

FMCD 260 Interpersonal Life Styles (3) Prerequisite FMCD 105 or equivalent Couple relationships in contemporary dating, courtship and marriage, and their alternatives

FMCD 330 Family Patterns (3) Theory and research on the family, including a cross-cultural analysis of family patterns

FMCD 332 The Child in the Family (3) Prerequisite FMCD 105 or PSYC 100 A family life education approach to the study of children and families Emphasis on the interaction of children with parents, siblings, extended kin and the community

FMCD 348 Practicum in Family and Community Development (3-12) Prerequisites FMCD 270, and 6 credits of practicum-related course work and permission of department. Corequisite FMCD 349 For FMCD majors only Repeatable to 12 credits A planned, supervised practicum to complement classroom instruction

FMCD 349 Analysis of Practicum (1-2) For FMCD majors only Weekly seminars for students concurrently carrying FMCD 348 Opportunities to integrate theory and practice Two credits for the first semester and one credit every semester thereafter for a maximum total of five credits

FMCD 370 Interpersonal Communication Processes (3) Training in interpersonal communication skills Relevant concepts, principles, and models

FMCD 381 Poverty and Affluence Among Families and Communities (3) Prerequisite FMCD 201 or SOCY 100, or SOCY 105. Social, political, economic interrelationships among families and communities with respect to varying resources

FMCD 399 Independent Study (1-6) Prerequisite permission of department Repeatable to 12 credits

FMCD 430 Gender Role Development in the Family (3) Prerequisites SOCY 100 and FMCD 260; or permission of department The development of historical, cultural, developmental, and psychosocial aspects of masculinity and femininity within the context of contemporary families and the implications for interpersonal relations

FMCD 431 Family Crises and Intervention (3) Prerequisite PSYC 100 Family crises such as divorce disability substance abuse financial problems intrafamilial abuse, and death Theories and techniques for intervention and enhancement of family coping strategies

FMCD 432 Intergenerational Aspects of Family Living (3) Prerequisites PSYC 100 and SOCY 100, and [FMCD 332 or other human development course] The historical, cultural, developmental and psychosocial experiences of contemporary American generations Interactions across generations within the family and the consequences for individual development Cross-national comparisons

FMCD 441 Personal and Family Finance (3) Prerequisite ECON 201 or ECON 205, or permission of department. Study of individual and family financial strategies with particular emphasis upon financial planning, savings, insurance, investments, income taxes, housing, and use of credit.

FMCD 443 Consumer Problems (3) Prerequisite ECON 201 or ECON 205, or permission of department. The consumer perspective in the production, marketing and use of goods and services. Special emphasis on the investigation of current issues.

FMCD 444 Human and Community Program Management (3) Goals, approaches, settings, and resources relevant to the management of human service programs in the community.

FMCD 445 Family and Household Management (3) Interrelationship of resources (time, money, energy, space, materials, and human resources) in operation of the household and in meeting demands of multiple roles of family members. Management as intervention strategy.

FMCD 447 The Disabled Person in the Family and Community (3) Prerequisite: PSYC 100 or SOCY 100. Disabled persons in family and community settings. Improvement of the quality of life of disabled persons.

FMCD 453 Family and Community Advocacy (3) Prerequisites: 6 credits in SOCY and GVPT. Strategies for change used by governmental and non-governmental institutions to improve the quality of family and community life in a variety of political, social and historical contexts.

FMCD 460 Violence in the Family (3) Prerequisite: PSYC 100 or SOCY 105 or FMCD 487. Theories of child, spousal, parental, grandparental abuse in the family setting; review of current evidence, and an introduction to methods for prevention and remediation.

FMCD 483 Family and Community Service Systems (3) Prerequisites: 6 credits in SOCY and GVPT. The planning, implementation, administration, and evaluation of human services systems affecting families and communities. Major organizational theories, managerial styles, administrative techniques, and issues in human service delivery.

FMCD 485 Introduction to Family Counseling (3) Prerequisites: FMCD 431, or PSYC 331, or PSYC 335, or permission of department. The fundamental theoretical concepts and clinical procedures that are unique to marital and family therapy. Individually-oriented psychotherapy. Pre-marital, marital and family and divorce counseling techniques.

FMCD 487 Legal Aspects of Family Problems (3) Prerequisite: FMCD 105 or SOCY 105. Laws and legal procedures with emphasis on adoption, marriage, divorce, annulment, and property rights, and how they affect family life.

FMCD 497 The Child and the Law (3) Legislation and case law regarding children's legal rights with emphasis on the rights of children in the juvenile justice system, and rights to medical, educational, and other social services.

FMCD 499 Special Topics (1-3) A - Family Studies B - Community Studies C - Management and Consumer Studies

FOLA — Foreign Language

FOLA 108 Elementary Foreign Languages I (3) The first semester of conversational study of a language not otherwise offered. May be repeated for credit if language covered is different. The arts and humanities language requirement may be fulfilled by successful completion of FOLA 108, 109, 118 AND 119 in a single language.

FOLA 109 Elementary Foreign Languages II (3) Prerequisite: FOLA 108 in the subject language or permission of the instructor. The second semester of conversational study of a language not otherwise offered. May be repeated for credit if language covered is different. The arts and humanities language requirement may be fulfilled by successful completion of FOLA 108, 109, 118 AND 119 in a single language.

FOLA 118 Intermediate Foreign Languages I (3) Prerequisite: FOLA 109 in the subject language or permission of the instructor. The third semester of conversational study of a language not otherwise offered. May be repeated for credit if language covered is different. The arts and humanities language requirement may be fulfilled by successful completion of FOLA 108, 109, 118 AND 119 in a single language.

FOLA 119 Intermediate Foreign Languages II (3) Prerequisite: FOLA 118 in the subject language or permission of the instructor. The fourth semester of conversational study of a language not otherwise offered. May be repeated for credit if language covered is different. The arts and humanities language requirement may be fulfilled by successful completion of FOLA 108, 109, 118 and 119 in a single language.

FOLA 128 Introductory Middle Eastern Languages I (3) Prerequisite: consent of the department. An introduction to the three principal languages of the Islamic Middle East: Arabic, Persian, and Turkish. Only standard written form of the three languages is taught. May be repeated to a maximum of nine hours when language varies. May not be used to satisfy arts and humanities language requirement.

FOLA 129 Introductory Middle Eastern Languages II (3) Prerequisite: FOLA 128 and consent of the department. Continuation of FOLA 128. May be repeated to a maximum of nine hours when languages varies. May not be used to satisfy arts and humanities language requirement.

FOLA 138 Directed Study of a Foreign Language I (3) Directed study of a modern foreign language with use of a self-instructional approach. Open only by permission of program director to students of high motivation and proven language learning aptitude.

FOLA 139 Directed Study of a Foreign Language II (3) Prerequisite: FOLA 138 in the same language or permission of program director. A continuation of FOLA 138.

FOLA 148 Directed Study of a Foreign Language III (3) Prerequisite: FOLA 139 in the same language or permission of the program director. A continuation of FOLA 139.

FOLA 149 Directed Study of a Foreign Language IV (3) Prerequisite: FOLA 148 in the same language or permission of program director. A continuation of FOLA 148.

FOLA 158 Directed Study of a Foreign Language (Intensive) I (6) Intensive directed study of a modern foreign language with use of a self-instructional approach. Open only by permission of program director to students of very high motivation and proven language learning aptitude. Equivalent to FOLA 138 plus FOLA 139.

FOLA 159 Directed Study of a Foreign Language (Intensive) II (6) Prerequisite: FOLA 158 in the same language or permission of program director. A continuation of FOLA 158. Equivalent to FOLA 148 plus FOLA 149.

FOLA 228 Intermediate Middle Eastern Languages I (3) Prerequisite: FOLA 129 and consent of the department. Continuation of FOLA 129. May be repeated to a maximum of nine hours when language varies. May not be used to satisfy arts and humanities language requirement.

FOLA 229 Intermediate Middle Eastern Languages II (3) Prerequisite: FOLA 228 and consent of the department. Continuation of FOLA 228. May be repeated to a maximum of nine hours when language varies. May not be used to satisfy arts and humanities language requirement.

FOLA 328 Advanced Middle Eastern Languages I (3) Prerequisite: FOLA 229 or consent of the department. Continuation of FOLA 229. May be repeated to a maximum of nine hours when language varies. May not be used to satisfy arts and humanities language requirement.

FOLA 329 Advanced Middle Eastern Languages II (3) Prerequisite: FOLA 328 or consent of the department. Continuation of FOLA 328. May be repeated to a maximum of nine hours when languages varies. May not be used to satisfy arts and humanities language requirement.

FOLA 389 Foreign Civilization (3) A survey of the cultural history, arts and letters, folklore and life-style of the speakers of a language not otherwise offered. May be repeated for six credits in a single civilization if content is different. All readings and instruction in English.

FOLA 408 Foreign Language I (3) Intensive study of a foreign language or related topic not available under one of the current foreign language departments or programs. May not be used to fulfill the arts and humanities language requirement.

FOLA 409 Foreign Language II (3) Prerequisite: FOLA 408 in the same language or topic. A continuation of FOLA 408. May not be used to fulfill Division of arts and humanities language requirement.

FOLA 459 Foreign Literature in Translation (3) Reading and discussion of selected authors, periods or genres of a foreign literature not otherwise offered. May be repeated for six credits in a single literature if content is different. All readings and instruction in English.

FOOD — Food

FOOD 105 Professional Orientation (1) A series of lectures introducing the student to the broad field of careers in food, nutrition, dietetics, and foodservice administration. Includes trends, role of related sciences, educational and personal requirements, ethics, and opportunities in each professional area.

FOOD 110 Food for People (3) A study of food in contemporary living. Economic, social, cultural and aesthetic implications of food. Selection and use of food in relation to eating habits and well-being of the individual.

FOOD 210 Scientific Principles of Food Preparation and Management (4) Three hours of lecture and three hours of laboratory per week. Prerequisite: NUTR 100 or FOOD 110. Study of basic scientific principles as applied to food preparation processes and management of family needs through organization of available resources.

FOOD 240 Science of Food I (3) Two hours of lecture and three hours of laboratory per week. Pre- or corequisite: CHEM 233 or CHEM 104. Composition and structure of food with study of the fundamental principles involved in food handling and treatment. Especially designed for majors in food, nutrition and foodservice administration.

FOOD 250 Science of Food II (3) Two hours of lecture and three hours of laboratory per week. Prerequisite: FOOD 240. A continuation of FOOD 240.

FOOD 300 Economics of Food Consumption (3) Prerequisites: ECON 201 or ECON 205, and FOOD 110 or NUTR 100. Interrelations of food, population and economic progress; trends in food consumption patterns, world and local food problems.

FOOD 440 Advanced Food Science I (3) Prerequisites: FOOD 250, and BCHM 261 or BCHM 461. Chemical and physical properties of food as related to consumer use in the home and institutions.

FOOD 445 Advanced Food Science Laboratory (1) Three hours of laboratory per week. Pre- or corequisite: FOOD 440. Chemical determination of selected components in animal and plant foods.

FOOD 450 Advanced Food Science II (3) One hour of lecture and six hours of laboratory per week. Prerequisite: FOOD 440 or equivalent. Individual and group laboratory experimentation as an introduction to methods of food research.

FOOD 480 Food Additives (3) Prerequisite: FOOD 440 or equivalent or permission of department. Effects of intentional and incidental additives on food quality, nutritive value and safety. Current regulatory procedures.

FOOD 490 Special Problems in Foods (2-3) Prerequisites: FOOD 440 and permission of department. Individual selected problems in the area of food science.

FOOD 498 Selected Topics (1-3) Prerequisite: permission of department. Repeatable to 6 credits if content differs. Selected current aspects of food.

FREN — French

FREN 101 Elementary French (4) Four classroom meetings per week plus one laboratory hour. Introduction to basic structures and pronunciation with emphasis on the four skills: listening, speaking, reading and writing. Not open to students with two or more years of high-school level French.

FREN 102 Elementary French (4) Four classroom meetings plus one laboratory hour per week. Prerequisite: FREN 101 at UMCP or permission of department. Further work on basic structures and pronunciation with emphasis on the four skills: listening, speaking, reading and writing.

FREN 103 Review of Elementary French (4) Limited to students who have had at least two years of high school French (or equivalent) or who do not qualify for FREN 104. Students may not receive credit for both FREN 101/102 and 103.

FREN 121 Accelerated French I (3) An intensive beginning course in French language skills: guided practice in reading and writing, understanding the spoken language and conversation, to enable the student to move more quickly to advanced courses. Enrollment restricted to students already having a good background at least one other foreign language (successful completion of level 4 in high school, or 104 or equivalent at the university level; or through linguistic competence acquired by residence abroad, or by demonstration of equivalent proficiency) with 122, may be used to satisfy language requirements.

FREN 122 Accelerated French II (3) Prerequisite: FRENCH 121. An intensive beginning course in French language skills: guided practice in reading and writing, understanding the spoken language and conversation, to enable the student to move more quickly to advanced courses. May be used to satisfy language requirements.

FREN 200 French For Reading (3) Intensive course designed to bring students to a basic reading and translating competence of ordinary literary and scientific French, with the aid of a dictionary, in one semester. Study of essential grammar, but no spoken or written French involved. No prerequisites. Course not open to students who have completed two years high school French or two semesters college French within the last five years nor to students for whom French in the native language. May not be used to satisfy the language requirement of the Division of arts and humanities.

FREN 203 Intermediate French (4) Grammar review with extended reading, discussion, and composition. Fulfils the arts and humanities language requirement.

FREN 204 Review Grammar and Composition (3) Prerequisite: FREN 203 or consent of department. An intensive review of major aspects of contemporary grammatical usage, training in comprehension; an introduction to guided composition.

FREN 211 Intermediate Conversation (3) Prerequisite: FREN 203 or consent of course chairman. Practice in spoken French with emphasis on contemporary French topics. Not open to native speakers.

FREN 250 Readings in French (3) Prerequisite FREN 203 or equivalent Selected readings from various genres in French literature Discussion and brief written reports in French

FREN 279 Readings in French Literature in Translation (3) Topic to be determined each semester All readings, discussions and examinations in English No prerequisites Repeatable for a maximum of 6 credits

FREN 301 Composition and Style (3) Prerequisite FREN 204, or course chairman's consent An introduction to the techniques of the dissertation generale; grammatical analysis, free composition

FREN 302 Introduction to Translation (3) Prerequisite: FREN 301 or course chairman's consent. Problems and strategies of translation into both English and French Journalistic and literary styles, practicum format

FREN 311 French Conversation: Contemporary Issues (3) Vocabulary development to the level of the contemporary French press Not open to native speakers of French

FREN 312 French Conversation: Current Cultural Events (3) Vocabulary development to the level of the contemporary French press Not open to native speakers of French

FREN 340 Modern French Literature in Translation (3) A survey of major authors and movements of French literature from pre-revolutionary France to the present. All work in English

FREN 350 Advanced Readings in French (3) Prerequisite FREN 204 or 250, or permission of instructor Selected readings in various genres from important French authors and from works dealing with various aspects of French life, culture, and civilization Translation, textual analysis, discussion and brief written reports in French

FREN 351 French Literature From the Revolution to the Present (3) Prerequisite FREN 204 or 250, or consent of the instructor A survey of the chief authors and major movements of French literature from Pre-Romanticism to the present

FREN 352 French Literature From the Middle Ages to the Revolution (3) Prerequisite. FREN 204 or 250, or consent of instructor A survey of the chief authors and major movements of French literature from the Middle Ages to the end of the 18th century

FREN 370 Aspects of French Civilization (3) Political, social, intellectual, and literary forces shaping contemporary France, from the French revolution to the present Taught in English Credit may not be counted toward a French major Credit not allowed for both FREN 370 and FREN 472

FREN 398 Practicum in Spoken French (1) Prerequisite FREN 312, or permission of department chairman Practice in French conversation at the advanced level Repeatable for a maximum of three credits Will not count toward the French major Satisfactory/Fail only

FREN 399 Directed Study in French (1-3) Prerequisite permission of department chairman Intended for advanced undergraduates who wish to work on an individual basis with a professor of their choice Open as elective to all students, but may not be counted toward French major May be taken for one, two or three credits, according to nature and scope of work envisaged May be taken more than once, however, only repeatable for a maximum of three credits. Grading method Satisfactory/Fail only

FREN 400 Applied Linguistics (3) The nature of applied linguistics and its contribution to the effective teaching of foreign languages Comparative study of English and French, with emphasis upon points of divergence Analysis, evaluation and construction of related drills

FREN 401 Stylistics (3) Prerequisite FREN 301 or course chairman's consent Comparative stylistic analysis, translation

FREN 402 Advanced Grammar and Phonetics (3) Prerequisite FREN 301 or course chairman's consent Theory and practice of grammatical structures and rules of phonetics

FREN 404 Advanced Conversation in French (3) Prerequisites FREN 311 and FREN 312, or consent of the instructor Development of fluency in French, stress on correct sentence structure and idiomatic expression Credit may not be applied toward the major in French

FREN 405 Explication De Textes (3) Oral and written analysis of short literary works, or of excerpts from longer works chosen for their historical, structural, or stylistic interest, with the purpose of training the major to understand literature in depth and to make mature esthetic evaluations of it

FREN 406 Business and Commercial French (3) A study of French as used in the business and commercial world

FREN 407 History of the French Language (3) Evolution of the French language from Latin to modern French

FREN 419 Studies in Medieval French Literature (3) Selected topics in medieval French literature Repeatable with different subtitle to a maximum of six credits

FREN 429 Studies in French Literature of the Renaissance (3) Selected topics in French literature of the Renaissance Repeatable with different subtitle to a maximum of six credits

FREN 439 Studies in 17th Century French Literature (3) Selected topics in seventeenth-century French literature Repeatable with different subtitle to a maximum of six credits

FREN 449 Studies in 18th Century French Literature (3) Selected topics in eighteenth-century French literature Repeatable with different subtitle to a maximum of six credits

FREN 459 Studies in 19th Century French Literature (3) Selected topics in nineteenth-century French literature Repeatable with different subtitle to a maximum of six credits

FREN 469 Studies in 20th Century French Literature (3) Selected topics in twentieth-century French literature Repeatable with different subtitle to a maximum of six credits

FREN 471 French Civilization I (3) French life, customs, culture, traditions (800-1750)

FREN 472 French Civilization II (3) French life, customs, culture, traditions (1750-present-day France) Credit not allowed for both FREN 472 and FREN 370

FREN 473 Contemporary French Society (3) The forces shaping contemporary France Analysis of social groups, economic development, institutions, political structures Lectures, discussions and most readings in French

FREN 475 French Cinema: A Cultural Approach (3) A study of French culture, civilization, and literature through the medium of film

FREN 478 Themes and Movements of French Literature in Translation (3) Studies treatments of thematic problems or of literary or historical movements in French literature Topic to be determined each semester Given in English

FREN 479 Masterworks of French Literature in Translation (3) Treats the works of one or more major French writers Topic to be determined each semester Given in English

FREN 489 Pro-Seminar in Themes or Movements of French Literature (3) Repeatable for a maximum of six credits

FREN 491 Honors Reading Course, Poetry (3) Supervised readings to be taken normally only by students admitted to the honors program

FREN 492 Honors Reading Course, Novel (3) Supervised readings to be taken normally only by students admitted to the honors program

FREN 493 Honors Reading Course, Drama (3) Supervised readings to be taken normally only by students admitted to the honors program

FREN 494 Honors Independent Study (3) Honors independent study involves guided readings based on an honors reading list and tested by a 6 hour written examination HONR 494 and 495 are required to fulfill the departmental honors requirement in addition to two out of the following, 491H, 492H, 493H Open only to students admitted to the departmental honors program

FREN 495 Honors Thesis Research (3) Honors thesis research involves the writing of a paper under the direction of a professor in this department and an oral examination HONR 494 and 495 are required to fulfill the departmental honors requirement in addition to two out of the following 491H, 492H, 493H Open only to students admitted to the departmental honors program

FREN 498 Special Topics in French Literature (3) Repeatable for a maximum of six credits

FREN 499 Special Topics in French Studies (3) An aspect of French studies, the specific topic to be announced each time the course is offered Repeatable for a maximum of six credits

FSAD — Foodservice Administration

FSAD 200 Introduction to Foodservice (2) Introduction to the historical development, future trends, and careers in the foodservice industry, e g franchises, multi-unit corporations, hospitals, educational institutions, and vending

FSAD 300 Foodservice Organization and Management (3) Prerequisite permission of department Introduction to basic principles of foodservice management Interrelationships of management processes and technical operations applied to foodservice

FSAD 350 Foodservice Operations I (5) Three hours of lecture and five hours of laboratory per week Prerequisite FOOD 250 Pre- or corequisites FSAD 300, and MICB 200 Introduction to management Responsibilities in quantity food production and purchasing in a foodservice operation Laboratory experience in planning, preparation, and service of meals which meet the nutritional needs of the consumer

FSAD 355 Foodservice Operations II (4) Two hours of lecture and five hours of laboratory per week Prerequisite FSAD 350 Foodservice systems management competencies and laboratory experience in recipe development, market analysis and merchandizing, testing quantity food products, and solving foodservice problems

FSAD 390 Introduction to Foodservice Budgeting (1) Prerequisite FSAD 300 Pre- or corequisite FSAD 350 Introduction to basic principles of budgeting for dietetics

FSAD 415 Foodservice Cost Accounting (3) Two hours of lecture and three hours of laboratory per week. Prerequisite FSAD 350 Study of foodservice financial management and cost accounting, and utilization of computers in controlling foodservice systems

FSAD 440 Foodservice Personnel Administration (2) Prerequisite FSAD 350 Personnel selection, training, scheduling, job evaluation, labor regulations and costs

FSAD 450 Foodservice Equipment Planning (3) Two hours of lecture and three hours of laboratory per week Prerequisite FSAD 350 Layout and design of a foodservice facility prospectus, menu, equipment selection and maintenance Factors affecting foodservice design and operations

FSAD 455 Manpower Planning for Foodservice (3) Pre- or corequisite FSAD 350 Foodservice management responsibilities in human resource planning and development based on current theories, legislation and the foodservice labor market

FSAD 480 Practicum in Foodservice Administration (3) Prerequisites FSAD 350 and permission of department Inservice training and practical experience totaling at least 120 hours in an approved foodservice operation under direct supervision of practicum advisor

FSAD 490 Special Problems in Foodservice (2-3) Prerequisites senior standing, five hours in FSAD courses and permission of department Individual selected problems in the area of foodservice

FSAD 498 Selected Topics (1-3) Prerequisite permission of department Repeatable to 6 credits if content differs Selected current aspects of foodservice administration

GEOG — Geography

GEOG 100 Introduction to Geography (3) An introduction to the broad field of geography as it is applicable to the general education student The course presents the basic rationale of variations in human occupancy of the earth and stresses geographic concepts relevant to understanding world, regional and local issues

GEOG 110 The World Today: A Regional Geography (3) A geographic examination of major countries and world regions Designed for the general student who wants a basic understanding of the environmental, cultural and economic forces affecting major regions of the world

GEOG 120 Nations in Conflict: A Spatial View (3) The geographic characteristics of conflict areas around the world Issues common to international disputes such as uneven access to resources, population pressures, religious differences and boundary disputes

GEOG 130 Developing Countries (3) An introduction to the geographic characteristics, development problems and prospects of less developed countries The distribution of poverty emerging livelihood patterns, migration and urban growth agricultural productivity rural development and international trade Portraits of selected developing countries

GEOG 140 Coastal Environments (3) Introduction to coastal environments with emphasis on U S East Coast Physical and ecological systems beach processes, waves, currents, human impacts, coastal zone management and shoreline engineering Case studies of coastal areas, including Ocean City MD

GEOG 150 World Cities (3) An introduction to the forces that affect the growth of cities in different parts of the world Regional variations in city design and examples of great world cities The impact of changing technologies, economic and social change on the evolution of the city Current and emerging trends

GEOG 160 World Resources (3) The location of forestry, mineral energy maritime and agricultural resources Identification of resource rich and poor regions and international resource flows U S consu and production of resources Emerging world trends

GEOG 170 Maps and Map Use (3) The use and interpretation of maps encountered in both everyday reading and in scientific literature Development of skills in map reading environmental analysis, interpretation and orienteering

GEOG 171 Maps and Map Use Laboratory (1) One two-hour laboratory per week. Pre or corequisite: GEOG 170. A laboratory course to accompany GEOG 170. Experience with maps as research tools; coordinate systems; projections; measurement of angles, directions, distance, area; topographic maps; map interpretation; symbolization; statistical mapping; spatial arrangement and remote sensing.

GEOG 201 Geography of Environmental Systems (3) A systematic introduction to the processes and associated forms of the atmosphere and earth's surfaces emphasizing the interaction between climatology, hydrology and geomorphology.

GEOG 202 The World in Cultural Perspective (3) The imprint of cultural traits such as religion, language and livelihood systems, on the earth's landscape. The transformation of the earth's surface as a result of cultural diversity, settlement patterns, political organization, cultural evolution, and population growth.

GEOG 203 Economic Geography (3) The spatial characteristics of world economic activities. Population patterns, technology and economic development; principles of spatial interactions in trade; transportation networks; the city as an economic mode; the location of industries and services; the production and trade of agricultural and energy products.

GEOG 211 Geography of Environmental Systems Laboratory (1) Prerequisite or corequisite: GEOG 201 or GEOL 100, or GEOL 120. One two-hour laboratory per week. A laboratory course to accompany GEOG 201. Analysis of the components of the earth's energy balance, using basic instrumentation, weather map interpretation, soil analysis, the application of map and air photo interpretation techniques to land form analysis.

GEOG 298 Special Topics in Geography (3) An introductory course dealing with special topics in geography. Repeatable to a maximum of 6 credits when course content differs.

GEOG 305 Quantitative Methods in Geography (3) A practical introduction to data sources and measurement, basic descriptive statistics, data collection, sampling and questionnaire design, field techniques, map use, introduction to computer use and data presentation.

GEOG 310 Research and Writing in Geography (3) Prerequisite: GEOG 305. Development of research methods in geography, including the formulation of problem, the establishment of hypotheses, development of structures for testing hypotheses, and practice with forms of geographic presentation. Maps, quantitative and field methods will be used as appropriate.

GEOG 320 North America (3) The contemporary patterns of American and Canadian life from a regional viewpoint. The significance of the physical environment, resource use, the political framework, economic activities, demographic and socio-cultural characteristics, regional identification, and regional problems.

GEOG 321 Maryland and Adjacent Areas (3) The physical environment, natural resources, and population in relation to agriculture, industry, transport, and trade in the State of Maryland and adjacent areas.

GEOG 322 Central America, the Caribbean and Mexico (3) The physical framework, broad economic and historical trends, cultural patterns, and regional diversification of Mexico, Central America, the West Indies.

GEOG 323 South America (3) A survey of natural environment and resources, economic development and cultural diversity of the South American Republics, with emphasis on problems and prospects of the countries.

GEOG 324 Europe (3) The geographical diversity of modern Europe from landscape and regional perspectives. The diverse features of Europe's physical environment and resource base, and their integration into the demographic, economic, social and political patterns of the continent's major geographic regions.

GEOG 325 Soviet Union (3) The natural environment and its regional diversity. Geographical factors in the expansion of the Russian state. The geography of agricultural and industrial production in relation to available resources, transportation problems, and diversity of population.

GEOG 326 Africa (3) A geography of sub-Sahara Africa: physical features, climates, political and cultural regions. Population and resource distribution, current levels of economic and social well-being, development projects and constraints, and migration trends.

GEOG 327 South Asia (3) Methods of regional analysis and area studies applied to the Indian Subcontinent, including India, Pakistan, Bangladesh, Sri Lanka and adjacent nations. Locational significance of the natural environment, historical and cross-cultural processes, languages and religion, the economy and government, population, archaeology, urbanization and development.

GEOG 328 Topics in Regional Geography (3) Selected topics in regional geography. Repeatable to a maximum of 6 credits when course content differs.

GEOG 330 East Asia (3) The geographic characteristics of China, Japan, and Korea. The physical setting: climate, population distribution, cultural and language regions. Contemporary problems, resource distribution, and development projects.

GEOG 331 Southeast Asia (3) Spatial organization and development in and among Malaysia, Singapore, Indonesia, the Philippines, Thailand, Vietnam, Laos, Kampuchea and adjacent nations. Locational significance of the natural environment, historical and cross-cultural processes, economic and modernization trends, social conflicts and future prospects.

GEOG 340 Geomorphology (3) Survey of the world's landforms. Frequency of occurrence and implications for land utilization. Coastal, fluvial, glacial and wind generated landforms in different environmental settings. Landform regions of Maryland.

GEOG 345 Climatology (3) The geographic aspects of climate with emphasis on energy-moisture budgets, steady-state and non-steady-state climatology, and climatic variations at both macro and micro-scales.

GEOG 347 The Physical Environment of Urban Areas (3) The constraints imposed upon urban land use by such environmental factors as geology, geomorphology and hydrology. The effects of urban land use upon climatology, soils, earth processes, water movement and vegetation.

GEOG 350 The American City: Past and Present (3) Development of the American city from the early nineteenth century to the present. The internal structure of contemporary metropolitan areas: the spatial arrangement of residential, commercial, and other activities: Washington, D.C. and Baltimore examples.

GEOG 370 Principles of Cartography (3) One hour of lecture and four hours of laboratory per week. Techniques and problems of compilation, symbolization, design and construction of special purpose maps. Emphasis on the methods of improving map design based on the organization of map components and the proper selection of symbols.

GEOG 372 Remote Sensing (3) Principles of remote sensing in relation to photographic, thermal infra-red and radar imaging. Methods of obtaining quantitative information from remotely-sensed images. Interpretation of remotely-sensed images emphasizing the study of spatial and environmental relationships.

GEOG 373 Computer Mapping (3) Prerequisite: GEOG 370 or CMSC 110. Introduction to the use of computers to produce maps, with emphasis on software packages and algorithms used to produce thematic maps. Mathmatical and perceptual problems of maps produced on line printers, line plotters, and display screens.

GEOG 380 Local Field Course (3) Training in geographic field methods and techniques. Field observation of land use in selected rural and urban areas in Eastern Maryland. One lecture per week with Saturday and occasional weekend field trips. Primarily for undergraduates.

GEOG 384 Internship in Geography (3) Prerequisites: GEOG 305, 310, and permission of department. Corequisite: GEOG 385. Supervised field training to provide career experience. Introduction to professional level activities, demands, opportunities. Placement at a public agency, non-profit organization, or private firm. Participation requires application to the internship advisor in preceding semester.

GEOG 385 Internship Research Paper (3) Prerequisite: GEOG 305, 310, and permission of department. Corequisite: GEOG 384. Seminar conducted on campus. Research paper related to the student's internship.

GEOG 398 Honors Research (3) Student development of a potential research topic under the guidance of a faculty advisor, culminating in a written and oral presentation of a research proposal.

GEOG 399 Honors Thesis (3) Prerequisite: GEOG 398. Second course in departmental honors sequence. Student research under the auspices of a faculty advisor, culminating in a research paper to be defended orally before the geography honors committee.

GEOG 410 Colonial North America (3) The changing geography of the U.S. and Canada from pre-Columbian times to the end of the 18th century. Emphasis on areal variations, and changes in the settlements and economies of Indian and colonial populations. Areal specialization, and the changing patterns of agriculture, industry, trade and transportation. Population growth, composition and interior expansion. Regionalization.

GEOG 411 19th Century North America (3) An analysis of the changing geography of the U.S. and Canada from 1800 to the 1920's. The settlement, expansion and socio-economic development of the U.S., and comparisons with the Canadian experience. Immigration, economic activities, industrialization, transportation and urbanization.

GEOG 414 Historical Geography of the Hispanic World (3) The social, economic, political and cultural geography of the countries of the Iberian peninsula and Latin America in the past with concentration on specific time periods of special significance in the development of these countries.

GEOG 416 Oversees European Colonization and the Third World (3) The impact of European overseas expansion on Africa, Asia and Australasia during the 19th and early 20th centuries. Settlement patterns and territorial organization. Cultural and demographic change. Economic organization of space.

GEOG 420 Cultural Geography (3) Prerequisite: one of the following: GEOG 201 and 202, ANTH 101 and 102, or consent of instructor. The impact of man through his ideas and technology on the evolution of geographic landscapes. Major themes in the relationships between cultures and environments.

GEOG 421 Cultural Ecology (3) Basic issues concerning the natural history of man from the perspective of the geographer. Basic components of selected behavioral and natural systems, their evolution and adaptation, and survival strategies.

GEOG 422 Population Geography (3) The spatial characteristics of population distribution and growth, migration, fertility and mortality from a global perspective. Basic population-environmental relationships; carrying capacity, density, relationships to national development.

GEOG 423 Political Geography (3) Geographical factors in the national power and international relations; an analysis of the role of "geopolitics" and "geostrategy," with special reference to the current world scene.

GEOG 430 Location Theory and Spatial Analysis (3) Theories and procedures for determining the optimal location of industrial, commercial and public facilities. Techniques to evaluate location decisions. The provision of services within regions and metropolitan areas. Emerging trends.

GEOG 433 Transportation Networks (3) The description and modeling of the spatial components of transportation systems. The theory and practice of analysing transportation networks, including nodes, links, routes, flows and regions. Examples drawn from different transportation nodes.

GEOG 434 Agricultural and Rural Development (3) The nature of agricultural resources, the major types of agricultural exploitation in the world and the geographic conditions. Main problems of conservation.

GEOG 436 Issues in Urban Transportation (3) The spatial patterns of personal travel, movement of goods, and public transit services in cities. Transportation and land use. Public policy issues, transportation access, energy use, and neighborhood disruption. Methods of data collection and analysis, travel demand surveys.

GEOG 440 Process Geomorphology (3) Prerequisite: GEOG 340 or GEOL 340 or consent of instructor. A quantitative investigation of the fundamental geomorphic processes shaping modern landscapes, with emphasis on fluvial, coastal and glacial processes. Field, instrumentation and laboratory analyses.

GEOG 441 Geomorphological Environment (3) Prerequisite: GEOG 201, GEOL 100 or consent of instructor. Analysis of regional geomorphic environments, arctic, alpine, coastal, desert. Fluvial and glacial landscape impacts. Discussion of historical environments.

GEOG 442 Urban Climates (3) Prerequisite: one of the following, GEOG 345, 347, METO 301 or consent of instructor. Effects of cities on their climatic environment. Radiant energy budgets, urban heat islands, precipitation patterns and effects of the urban climate on human activities. Computer simulation of urban climates and field study.

GEOG 446 Applied Climatology (3) Prerequisite: GEOG 345 or consent of instructor. The components of the earth's readiation balance and energy budgets: radiation, soil heat flux and the evaporation process. Measurement and estimation techniques. Practical applications of microclimatological theory and techniques.

GEOG 448 Field and Laboratory Techniques in Environmental Science (1-3) Two lectures and on two-hour laboratory per week. Prerequisite: one of the following: GEOG 201, GEOL 100, AGRO 105, ENCE 221 or consent of instructor. A variable credit course that introduces field and laboratory analyses in environmental science.

GEOG 450 The Contemporary City (3) The contemporary urban system: towns, cities and metropolitan areas and their role as concentrations of social and economic activity. Patterns of land-use: residential, commercial activity, manufacturing, and transportation. Explanatory and descriptive models. International comparisons.

GEOG 454 Washington: Past and Present (3) The development of the Washington area from its origin as the Federal Capital to its role as a major metropolitan area. The geographic setting, the L'Enfant Plan and its modification, the federal government role, residential and commercial structure. The growth of Washington's suburbs.

GEOG 456 The Social Geography of Metropolitan Areas (3) A socio-spatial approach to man's interaction with his urban environment, the ways people perceive define, behave in, and structure their cities and metropolitan areas Spatial patterns of social activities as formed by the distribution and interaction of people and social institutions

GEOG 457 Historical Geography of North American Cities (3) The urbanization of the United States and Canada prior to 1920 The evolution of the urban system across the countries and the spatial distribution of activities within cities The process of industrialization and the concurrent structuring of residential patterns among ethnic groups

GEOG 462 Water Resources and Water Resource Planning (3) Critical concepts in U S water resources managememnt with emphasis on Federal water policy, water supply, water quality, flood control and water recreation issues Water resource planning basic concepts and the development of water management plans

GEOG 463 Geographic Aspects of Pollution (3) Impact of human activities on the environment and resulting pollution problems The characteristics and spatial aspects of air, water, and land resource problems Federal legislation and planning techniques to reduce pollution

GEOG 464 Energy Resources and Planning (3) Regional distribution of energy resources and consumption in the U S past and present patterns of energy use Assessment of the potential of conservation, and nuclear fossil and renewable energy resources with an emphasis on spatial impact of energy policy desisions

GEOG 467 Energy Resources and the Environment (3) The effect of energy resource utilization on the physical environment including land use, air and water quality, and solid waste generation Recent laws designed to reduce environmental impacts The physical consequences of alternative energy technologies

GEOG 470 Development of Cartographic Technology (3) The impact of technological improvements in land surveying and maps production of graphic images The formation, expansion and diffusion of geographic information Study of cartographic imagery as a changing form of communication

GEOG 471 Cartographic Production (3) One hour of lecture and four hours of laboratory per week Map making and modern methods of production and reproduction Organization of artwork for multicolor or series map production including production planning and quality control

GEOG 475 Principles of Map Design (3) Prerequisite GEOG 370 The principles of designing maps for publication in print media, including books and atlases The selection of symbols, colors, lettering, map projections, and map content Constraints and problems in the classification and representation of map data

GEOG 478 Problems in Cartography (3) Prerequisite 6 credit hours in cartography or consent of instructor Special topics in cartography for advanced students Problems of cartographic management special use maps, automated map production, map pattern perception, tabular information from maps, map projections, transformations, and new technologies Repeatable to a maximum of six credits

GEOG 480 Advanced Remote Sensing (3) Prerequisite GEOG 372 or introductory remote sensing in another department Project-oriented approach to specific applications of remote sensing Use of numerical, digital data and pictoral images from aircraft and space vehicles Image display and enhancement Applications in resources management and environmental studies

GEOG 481 Advanced Computer Mapping (3) Prerequisite GEOG 373 or consent of instructor Advanced concepts in automated cartography Computerized map projections and displays Computer assisted map design and symbolization

GEOG 482 Geographic Information Systems (3) Prerequisite GEOG 373 or consent of instructor The construction and use of computer-based information systems The collection, manipulation and automated display of geographical data Applications in areas such as resource management, political boundaries, terrain analysis and community planning

GEOG 483 Survey of Computer Facilities for Geography and Urban Studies (1) The PRIME computer system Graphics terminals, digitizers, plotters File creation and use (PRIMOS), software for statistical analysis (MINITAB), relational data base management system (INFO), digitizing (DIGSRF2) contour mapping (SURFACE II), mapping of census data (CHOROMAP), symbol mapping (GIMMS) Other computer facilities on campus

GEOG 490 Geographic Concepts and Source Meterials (3) A comprehensive and systematic survey of geographic concepts designed exclusively for teachers Stress will be placed upon the philosophy of geography in relation to the social and physical sciences the use of the primary tools of geography source materials and the problems of presenting geographic principles

GEOG 498 Topical Investigations (1-3) Independent study under individual guidance Restricted to advanced undergraduate students with credit for at least 24 hours in geography and to graduate students Any exception should have the approval of the head of the department

GEOL — Geology

GEOL 100 Physical Geology (3) A general survey of the rocks and minerals composing the earth, its surface features and the agents that form them, and the dynamic forces of plate tectonics Credit will not be given for both GEOL 100 and GEOL 101

GEOL 101 Physical Geology for Science Students (4) Two hours of lecture, three hours of laboratory and one hour of discussion recitation per week Credit will be granted for only one of the following GEOL 100 or GEOL 101 For science students Basic physical, chemical, and biological models describing how the earth's dynamic systems function

GEOL 102 Historical Geology (4) Three hours of lecture and three hours of laboratory per week Prerequisite GEOL 100 or GEOL 101 Earth's history as revealed through the principles of stratigraphy and the processes of physical geology Emphasis on formations and geologic development of the North American continent

GEOL 110 Physical Geology Laboratory (1) One laboratory a week Pre- or corequisite GEOL 100 or GEOL 101 The basic materials and tools of physical geology stressing familiarization with rocks and minerals and the use of maps in geologic interpretations

GEOL 120 Environmental Geology (3) A review of geologic factors underlying many environmental problems and the interactions between population and physical environment geologic hazards, land-use planning, conservation, mineral resources, waste disposal, land reclamation and the geologic aspects of health and disease The course is aimed at lower division students in education and liberal arts, and should be useful to any student concerned with geologic perspectives of environmental problems

GEOL 210 Gems and Gemstones (3) A survey of the origin, occurrances, properties, fashioning, and treatments of natural and synthetic materials, with emphasis on diamonds and colored stones

GEOL 212 Planetary Geology (3) An examination of the geological and geochemical processes at work in the solar system from the perspectives supplied by space age exploration of the planets and other solar system bodies

GEOL 301 Evolution in Geology (3) Prerequisites a college-level physical or biological science course with laboratory An analysis of data assumptions and logical structure of seafloor spreading and continental drift, biological evolution and the geological record, the concept of geologic time, catastrophism in geology, and 'creationist geology

GEOL 302 Analysis of Environmental Pollution of Mining and Mineral Utilization (3) Prerequisites GEOL 100 and CHEM 103 or permission of department Sources and nature of pollution derived from the mining and utilization of ore minerals Analysis of the appropriateness of current government regulations

GEOL 321 Crystallography (3) Two lectures and one laboratory a week Prerequisite MATH 115 or consent of instructor An introduction to the study of crystals The theoretical and practical relationships between the internal and external properties of crystalline solids Morphological, optical and chemical crystallography

GEOL 322 Mineralogy (4) Two lectures and two laboratories a week Prerequisite GEOL 110 and CHEM 103, or consent of instructor Basic mineralogy for geology majors The principles of morphologic crystallography crystal chemistry and determinative mineralogy

GEOL 331 Invertebrate Paleontology (4) Three lectures and one laboratory a week Prerequisite GEOL 102 or consent of instructor A systematic review of the morphology classification, interrelationships and geologic significance of all the commonly fossilized invertebrate phyla

GEOL 340 Geomorphology (4) Three hours of lecture and three hours of laboratory per week Two Saturday field trips Prerequisites GEOL 101 or [LB]GEOL 100 and GEOL 110] Analysis of landforms, organized on the basis of the geological processes that have operated during the late Cenozoic Constructional and erosional landforms related to physical systems operating on geologic structures through time

GEOL 341 Structural Geology (4) Three hours of lecture and three hours of laboratory per week Prerequisite GEOL 102 or permission of department Deformation of the earth s crust stress and strain mechanical behavior of rocks, origin and significance of structural features Construction of geologic maps and cross sections stereographic and orthographic representation of structures

GEOL 342 Sedimentation and Stratigraphy (4) Three hours of lecture and three hours of laboratory per week Prerequisite GEOL 322 or permission of department Description, origin and distribution of sediments and sedimentary rocks Mandatory field trip

GEOL 375 General Oceanography (3) Formerly GEOL 475 Introduction to the processes shaping the marine environment The geological and biological processes contributing significantly to the geological record and the environment

GEOL 390 Field Methods (3) Six hours of laboratory per week Prerequisites GEOL 331 and GEOL 341 Corequisites GEOL 342 and GEOL 443 The basic skills and procedures used in field geology Course serves as a prerequisite for GEOL 490, Geology Field Camp

GEOL 393 Technical Writing for Geoscientists (3) Prerequisite ENGL 101 and completion of any two of the following and concurrent registration in the third GEOL 341, GEOL 331 and GEOL 322 Open only to geology majors Planning, writing and presenting a plan for research in the geosciences

GEOL 394 Research Problems in Geology (3) Prerequisite GEOL 393 Investigation of a specific laboratory library or field problem Written and oral presentation of the study

GEOL 410 Industrial Rocks and Minerals (3) Prerequisite GEOL 322 or consent of instructor The origin, occurrence, mineralogy extraction and treatment technology, production and deposit evaluation of rocks and minerals used in the construction, ceramic, chemical and allied industries Restricted to non-fuels, non-metallic, non-gem materials Field trips to industrial locations are required

GEOL 423 Optical Mineralogy (3) One lecture and two laboratories a week Prerequisite GEOL 322 or consent of instructor The optical behavior of crystals with emphasis on the theory and application of the petrographic microscope

GEOL 432 Biostratigraphy (3) Two hours of lecture and three hours of laboratory per week Prerequisite GEOL 331 Principles of biostratigraphy, paleoecology and paleogeology Laboratory study emphasizes significant index fossils

GEOL 434 Micropaleontology (3) Two lectures and one laboratory a week Prerequisite GEOL 331 or consent of instructor A systematic review of the morphology, classification, ecology and geologic ranges of important microfossil groups, particularly ostracoses and foraminifera

GEOL 436 Regional Geology of North America (3) Prerequisite GEOL 102 or consent of the instructor A systematic study of the regional geology of North America including history structure, stratigraphy and petrology of the physiographic provinces of the United States, Canada and the Caribbean

GEOL 443 Petrology (3) Prerequisite GEOL 322 or consent of instructor Two lectures and one laboratory per week A detailed study of rocks petrogenesis, distributions, chemical and mineralogical relation, macroscopic descriptions and geologic significance

GEOL 444 Petrography (3) One lecture and two laboratories a week Prerequisites GEOL 423, 342 or consent of instructor Microscopic thin-section studies of rocks stressing the description and classification of igneous and metamorphic rocks

GEOL 445 Principles of Geochemistry (3) Prerequisites CHEM 103 and GEOL 322 An introduction to the basic principles of geochemistry including geothermometry geobarometry geochronology and the genesis of natural inorganic materials

GEOL 446 Geophysics (3) Two lectures and one laboratory a week Prerequisite PHYS 142 or consent of instructor An introduction to the basic theories and principles of geophysics stressing such important applications as rock magnetism gravity anomolies, crustal strain and earthquakes and surveying

GEOL 447 Geochemistry of Fuels (3) Prerequisite CHEM 104 or consent of instructor Discussion of the progenitors and the biochemical chemical and physical agencies that convert them into crude oils coals of various ranks, natural gas and other organic fuels The origin, composition mineralogy and organic constituents (kerogen) of oil shales Mineralogy geochemical cycles and accumulation of uranium and thorium

GEOL 451 Groundwater Geology (3) Prerequisite GEOL 100 or GEOL 101 or consent of instructor An introduction to the basic geologic parameters associated with the hydrologic cycle Problems in the accumulation, distribution and movement of groundwater will be analyzed

GEOL 453 Economic Geology (3) Two laboratories a week Prerequisite GEOL 322 or consent of instructor A study of the geology of metallic ore deposits stressing ore-forming processes configuration of important ore bodies and familiarization with characteristic ore mineral suites

GEOL 454 Petroleum Geology (3) Prerequisite: GEOL 341. The occurrence of petroleum, the reservoir, fluids in the reservoir, and preliminary consideration of reservoir dynamics based upon temperature and pressure. Special emphasis on reservoir sedimentology, the role of water in the behavior of constituent clays, and techniques of wireline logging of subsurface lithologies.

GEOL 456 Engineering Geology (3) Prerequisite: GEOL 341 or consent of the instructor. Two lectures and one laboratory a week. A study of the geological problems associated with the location of tunnels, bridges, dams and nuclear reactors, slope control, and natural hazards.

GEOL 462 Geological Remote Sensing (3) One lecture and two laboratories a week. Prerequisites: GEOL 341 and 342, or consent of the instructor. An introduction to geological remote sensing including applications of aerial photographic interpretation to problems in regional geology, engineering geology, structural geology, and stratigraphy. Films, filters, and criteria used in selecting imagery are also discussed. Laboratory exercises include measurements of geologic parameters and compilation and transference of data to base maps.

GEOL 471 Geochemical Methods of Analysis (3) Prerequisite: CHEM 103 AND 113. Principles and application of geochemical analysis as applied to a variety of geological problems. X-ray and optical spectroscopy, X-ray diffraction, atomic absorption, electron microprobe and electron microscopy.

GEOL 472 Tectonics (3) Prerequisite: GEOL 341 or consent of instructor. Selected tectonic elements of organic belts through out the world viewed in the framework of plate tectonics and sea floor spreading.

GEOL 474 Computer Modeling for Geologists (3) Prerequisite: GEOL 331, 341, 342 or 423; CMSC 110. Computer modeling in the geosciences.

GEOL 490 Geology Field Camp (3) Prerequisite: GEOL 390 or equivalent. Three-week intense field geology course taught off campus during the summer. Students describe and compile maps of formations and structures from outcrops, subsurface, and remotely sensed data. Special fees required.

GEOL 499 Special Problems in Geology (1-3) Prerequisites: GEOL 102 AND 110 or equivalent, and consent of instructor. Intensive study of a special geologic subject or technique selected after consultation with instructor. Intended to provide training or instruction not available in other courses which will aid the student's development in his field of major interest.

GERM — German

GERM 001 Elementary German For Graduate Students (3) Intensive elementary course in the German language designed particularly for graduate students who wish to acquire a reading knowledge. This course does not carry credit towards any degree at the University.

GERM 101 Elementary German I (4) Four recitations per week plus one laboratory hour. Introduction to basic structures and pronunciation by emphasis on the four skills listening, speaking, reading and writing. Readings concern the current life-style and civilization of the German-speaking world.

GERM 102 Elementary German II (4) Four recitations per week plus one laboratory hour. Prerequisite: GERM 101 or equivalent. A continuation of GERM 101, completing the introduction of basic structures and continuing the involvement with the civilization of the German-speaking world.

GERM 103 Review of Elementary German (4) Prerequisite: assignment either by placement examination or by the undergraduate director (Germanic Section). Designed specifically for students who are too advanced for GERM 101 but are not sufficiently prepared to take GERM 102. GERM 103 covers the coursework to the completion of GERM 102 in one semester. Four recitations per week plus one laboratory hour.

GERM 104 Intermediate German (4) Four recitations per week plus one laboratory hour. Prerequisite: GERM 102 or 103 or equivalent. Grammar review and greater mastery of vocabulary, idioms, conversational fluency and compositional skills. Readings stress the current life-style and civilization of the German-speaking world.

GERM 141 Elementary Yiddish I (3) Pronunciation and basic grammatical structures, readings in the life-style and culture of the Yiddish-speaking world.

GERM 142 Elementary Yiddish II (3) Prerequisite: GERM 141 or equivalent. A continuation of GERM 141.

GERM 144 Intermediate Yiddish I (3) Prerequisite: GERM 142 or equivalent. Grammar review and greater mastery of vocabulary, idioms, conversational fluency and compositional skills, readings on Yiddish culture.

GERM 145 Intermediate Yiddish II (3) Prerequisite: GERM 144 or equivalent. Continuation of GERM 144.

GERM 151 Elementary Dutch I (3) Pronunciation and basic grammatical structures, readings in the life-style and civilization of the Dutch-speaking world.

GERM 152 Elementary Dutch II (3) Prerequisite: GERM 151 or equivalent. A continuation of GERM 151.

GERM 154 Intermediate Dutch I (3) Prerequisite: GERM 152 or equivalent. Grammar review and greater mastery of vocabulary, idioms, conversational fluency and compositional skills, readings on Netherlandic civilization.

GERM 155 Intermediate Dutch II (3) Prerequisite: GERM 154 or equivalent. A continuation of GERM 154.

GERM 161 Elementary Danish I (3) Conversational skills in modern Danish.

GERM 162 Elementary Danish II (3) Prerequisite: GERM 161 or equivalent. A continuation of GERM 161.

GERM 163 Elementary Norwegian I (3) Conversational skills in modern Norwegian.

GERM 164 Elementary Norwegian II (3) Prerequisite: GERM 163 or equivalent. A continuation of GERM 163.

GERM 165 Elementary Swedish I (3) Conversational skills in modern Swedish.

GERM 166 Elementary Swedish II (3) Prerequisite: GERM 165 or equivalent. A continuation of GERM 165.

GERM 220 Introduction to German Literature (3) Prerequisite: GERM 114 or equivalent. Reading and discussion of major authors with emphasis on contemporary German literature. Readings and instruction in German. May be taken concurrently with GERM 115.

GERM 261 Intermediate Danish I (3) Prerequisite: GERM 162 or equivalent. Grammar review and greater mastery of vocabulary, idioms, conversational fluency and composition skills, readings of literary texts and magazine or newspaper articles.

GERM 262 Intermediate Danish II (3) Prerequisite: GERM 261 or equivalent. A continuation of GERM 261.

GERM 263 Intermediate Norwegian I (3) Prerequisite: GERM 164 or equivalent. Grammar review and greater mastery of vocabulary, idioms, conversational fluency and composition skills, readings of literary texts and magazine or newspaper articles.

GERM 264 Intermediate Norwegian II (3) Prerequisite: GERM 263 or equivalent. A continuation of GERM 263.

GERM 265 Intermediate Swedish I (3) Prerequisite: GERM 166 or equivalent. Grammar review and greater mastery of vocabulary, idioms, conversational fluency and composition skills; readings of literary texts and magazine or newspaper articles.

GERM 266 Intermediate Swedish II (3) Prerequisite: GERM 265 or equivalent. A continuation of GERM 265.

GERM 280 German-American Cultural Contrast (3) A study of German-American culture in contemporary literature.

GERM 281 Women in German Literature and Society (3) A study of changing literary images and social roles of women from the beginning of the 19th century to the present.

GERM 282 Germanic Mythology (3) An introduction to the religious beliefs of the pagan Germanic peoples. Comparison of Germanic myths with those of other Indo-European peoples. The conversion of the Germania to Christianity and the preservation of pagan beliefs in superstition and literature.

GERM 285 German Film and Literature (3) A visual approach to German literature through a study of the historical, cultural, and literary significance of German films. Representative examples from the golden age of German silent films to the new German cinema.

GERM 301 Conversation and Composition I (3) Prerequisite: GERM 115 or equivalent. Practice in contemporary spoken and written German. Systematic review of grammar, and exercise in composition. Emphasis on cultural contrasts.

GERM 302 Conversation and Composition II (3) Prerequisite: GERM 301 or equivalent. Continuation of GERM 301.

GERM 321 Highlights of German Literature I (3) Prerequisite: GERM 220 or equivalent. Selected masterworks from different periods of German literature: middle ages, reformation, baroque, 18th century, classicism. Readings and instruction in German.

GERM 322 Highlights of German Literature II (3) Prerequisite: GERM 220 or equivalent. Selected masterworks from different periods of German literature: romanticism, Biedermaier, Junges Deutschland, realism, naturalism and its counter currents, expressionism to the present. Readings and instruction in German.

GERM 339 German Literature In Translation (3) Selected movements, genres or other special topics in German literature. Readings and instruction in English. May be repeated to a maximum of six credits if the subject matter is different. May not be counted in the fulfillment of German major requirements in German literature.

GERM 348 Yiddish Culture (3) Various phases of Yiddish culture ranging from the life-style of European jewry in the 'shtetl' to experiences of the immigrant. Readings and instruction in English. Repeatable to a maximum of 6 credits if subject matter is different.

GERM 349 Yiddish Literature in Translation (3) Study of an important Yiddish author, period or theme. Readings and instruction in English. Repeatable to a maximum of 6 credits if subject matter is different.

GERM 358 Netherlandic Civilization (3) The literary, scientific and artistic traditions, great men and women, customs and general culture of the Netherlands and Flemish-speaking Belgium, or specific study of a period, feature or concern of Netherlandic civilization. All readings and instruction in English. May be repeated up to a maximum of six credits if subject matter is different.

GERM 359 Netherlandic Literature in Translation (3) Study of a major Netherlandic author, genre, period or theme. Readings and instruction in English. Repeatable to a maximum of six credits if subject matter is different.

GERM 368 Scandinavian Civilization (3) Literary, artistic and historic traditions, folklore and superstition, customs and life-style shared by Scandinavian nations. Readings and instruction in English. Repeatable to a maximum of 6 credits if subject matter is different.

GERM 369 Scandinavian Literature in Translation (3) Study of a major Scandinavian author, genre, period or theme. Readings and instruction in English. Repeatable to a maximum of 6 credits if subject matter is different.

GERM 381 German Civilization I (3) A survey of the literary, educational and artistic traditions, great men and women, customs and general culture of the German-speaking world from the beginnings to the middle of the 19th century. All readings and instruction are in English.

GERM 382 German Civilization II (3) A continuation of GERM 381 covering the development of German, Austrian and Swiss civilizations from the middle of the 19th century to the present. All readings and instruction are in English.

GERM 383 The Viking Era (3) An introduction to the lifestyle of northern Europe in the 9th to 11th centuries. Readings and instruction in English.

GERM 384 The Age of Chivalry (3) An introduction to the lifestyle of northern Europe in the 12th to 14th centuries. Readings and instruction in English.

GERM 389 Topics in Germanic Culture (3) Topics in the cultures of the German, Germanic, Indo-European peoples and of their culturally related non-Indo-European neighbors. In English. Repeatable to a maximum of six credits if subject matter is different.

GERM 397 Honors Reading (Independent Study) (3) Supervised reading to be taken normally only by students admitted into honors program.

GERM 398 Honors Reading Course (3) Discussion of a central theme with related investigations by students. Conducted in German.

GERM 401 Advanced Conversation (3) Prerequisite: GERM 302 or equivalent. Development of fluency in spoken German. Discussion of contemporary issues.

GERM 403 Advanced Composition (3) Prerequisite: GERM 302 or equivalent. Advanced instruction in writing skills.

GERM 405 Stylistics (3) Prerequisite: GERM 302 or equivalent. Stylistic analysis of oral and written German both literary and non-literary. Intensive study of vocabulary and syntax. Dictionary and composition exercises.

GERM 415 German/English Translation I (3) An intensive presentation of German grammar limited exclusively to reading skill, graded readings in the arts and sciences. Instruction in English, can not be used to satisfy the arts and humanities foreign language requirement. May not be taken for credit by students who have completed GERM 111-115 and/or GERM 301/302.

GERM 416 German/English Translation II (3) Prerequisites: GERM 302, GERM 415 or equivalent. Written translation of materials from the student's field of study. Discussion of basic problems of German-to-English translation, with examples from students' projects. Instruction in English. Cannot be used to satisfy the arts and humanities foreign language requirement.

GERM 418 Practicum in German/English Translation (3) Prerequisite: GERM 416 or equivalent. Problems of professional translating from German into English, translation of literary and technical texts; the assembling and use of a specialized translator's reference library. May be repeated up to a maximum of six credits.

GERM 419 Selected Topics in German Language Study (3) Prerequisite: GERM 302 and consent of instructor. Repeatable to a maximum of six credits if subject matter is different.

GERM 421 Literature of the Middle Ages (3) Prerequisites: GERM 321 and 322, or permission of instructor German literature from the 8th through the 15th centuries Readings include old high German texts, the German heroic, courtly and popular epic Minnesang, Meistersang, the late Medieval epic folk literature of the late Middle Ages Read in modern German translation

GERM 422 From the Reformation Through the Baroque (3) Prerequisites: GERM 321 AND 322, or permission of instructor Readings of representative authors from the reformation and the period of humanism through the baroque (ca 1517 1720) Readings and instruction in German

GERM 423 From Enlightenment through Storm and Stress (3) Prerequisites: GERM 321 and 322, or permission of instructor Readings of representative authors from the Enlightenment (1720- 1785), the Age of Sentimentalism (1740-1780), and Storm and Stress (1767-1785) Readings and instruction in German

GERM 424 Classicism (3) Prerequisites: GERM 321 and 322, or permission of instructor Readings of representative authors from the Age of Classicism (1786-1832) Readings and instruction in German

GERM 431 Romanticism and Biedermeier (3) Prerequisites: GERM 321 and 322 or permission of instructor Readings of representative authors from the periods of Romanticism (1798-1835) and Biedermeier (1820-1850) Readings and instruction in German

GERM 432 Junges Deutschland and Realism (3) Prerequisite: GERM 321 and 322, or permission of instructor Readings of representative authors from the periods of Junges Deutschland (1830-1850) and Realism (1850-1890) Readings and instruction in German

GERM 433 Naturalism and Its Counter Currents (3) Prerequisites: GERM 321 and 322, or permission of instructor Readings of representative authors from the period of naturalism and its counter currents (1880-1920) Readings and instruction in German

GERM 434 Expressionism to 1945 (3) Prerequisites: GERM 321 AND 322, or permission of instructor Readings of representative authors from Expressionism through the period between the wars to the contrast of Nazi and Exile Literature (ca 1910-1945) Readings and instruction in German

GERM 435 From 1945 to the Present (3) Prerequisite: GERM 321 and 322, or permission of instructor Readings of representative authors from the Two Germanies, Austria, and Switzerland in the period from the end of World War II to the present Readings and instruction in German

GERM 439 Selected Topics in German Literature (3) Prerequisites: GERM 321 AND 322, or permission of instructor Specialized study of an author, school, genre, or theme Repeatable to a maximum of six credits if subject matter is different Readings and instruction in German

GERM 449 Selected Topics in Yiddish Studies (3) Prerequisite: Permission of instructor Study of a linguistic, literary or cultural topic in Yiddish studies Repeatable to a maximum of 6 credits if subject matter is different

GERM 459 Selected Topics in Netherlandic Studies (3) Prerequisite: consent of instructor Study of a linguistic, literary or cultural topic in Netherlandic Studies Repeatable to a maximum of six credits if subject matter is different

GERM 461 Reading Swedish, Danish and Norwegian I (3) Develops reading facility in three languages in one semester Texts read include Bergman's Seventh Seal, tales by H C Andersen, excerpts from works by Ibsen and Hamsun, and selected folk literature No foreign language prerequisite Not available for credit to students who have taken GERM 164 or GERM 165

GERM 462 Reading Swedish, Danish and Norwegian II (3) Prerequisite: GERM 461 or permission of instructor Further development of reading facility

GERM 463 The Icelandic Family Saga (3) Analysis of the old Norse saga as historiography, literature, and folklore Readings and instruction in English

GERM 464 The Fantastic and Historic Saga (3) Mythological/heroic sagas, translation of chivalric materials from the continent, and the histories of the Norwegian kings, the 'viking colonies' and the settlement of Iceland contrasted with the classical structure of the family saga chivalric models, and other national histories by Germanic writers of the Middle Ages Readings and instruction in English

GERM 469 Selected Topics in Scandinavian Studies (3) Prerequisite: Permission of instructor Study of a linguistic, literary or cultural topic in Scandinavian studies Repeatable to a maximum of 6 credits if subject matter is different

GERM 472 Introduction to Germanic Philology (3) Prerequisites: GERM 115 and GERM 471 or equivalent Reconstructed proto-Germanic and surveys of Gothic Old Norse Old English, Old Saxon The development of High German from the Old High German period through Middle High German to modern German a short introduction to modern German dialectology Instruction in English

GERM 475 Old Norse (3) The language of the old Icelandic saga, the Eddas and Skaldic poetry Reading of texts in the original historical development of Old Norse and its role in the Germanic language family No knowledge of German or a Scandinavian language required Instruction in English

GERM 479 Selected Topics in Germanic Philology (3) Prerequisite: consent of instructor Selected topics such as comparative Germanic studies, Old Norse language or readings in Old Norse literature, modern German dialectology Repeatable to a maximum of six credits if subject matter is different

GERM 499 Directed Study (1-3) Prerequisite: by permission of department chairman and/or undergraduate advisor Repeatable to a maximum of 6 credits if subject matter is different

GNED — General Education

GNED 100 The Anatomy of Knowing: the University and Its Curriculum (3) An exploration of the ways of understanding the world that characterize the three large areas of university study the sciences, the social sciences, and the arts and humanities students will have the opportunity to develop, in consultation with faculty, their personal plans for intellectual exploration Open to students with freshmen and sophomore standing

GNED 279 Selected Topics in the Social Sciences (3) A series of student-initiated seminars in the social sciences

GNED 288 Introduction to British Culture (3) Aspects of British culture they will encounter during their stay in London for students in the Study in London Program An historical introduction to the development of London, illustrating the city's dominant role in British life and culture Studies of the different communities, the media, architecture, the relationship between the community and the arts, environmental issues, as well as the political and commercial life of the city

GNED 289 Selected Topics in the Humanities (3) A series of student-initiated seminars in the humanities

GNED 299 Selected Topics in the Natural Sciences (3) A series of student-initiated seminars in the natural sciences

GNED 300 Perspectives on Nuclear War (3) Nuclear weapons are an important issue facing the world today A multidisciplinary approach to the issue of nuclear war, drawing upon the resources of many departments on campus and organizations off campus The mechanics of nuclear weapons and delivery systems, and the biological, psychological, medical, and meteorological effects of the use of nuclear weapons The history of confrontation, development of arms policies, and efforts at arms control

GNED 301 The Arts and the Sciences (3) A comparison of the modes of conceptualization and expression characteristic of scientists and creative artists Examination of such matters as description, style and the relationship of the artist and the scientist to society

GREK — Greek

GREK 101 Elementary Greek (3) A student who has had two units of Greek in high school may register for GREK 101 for purposes of review, but not for credit

GREK 102 Elementary Greek (3) A student who has had two units of Greek in high school may register for GREK 102 for credit with departmental permission

GREK 203 Intermediate Greek (Grammar and Reading) (3) Prerequisite: GREK 101 102 or equivalent

GREK 204 Intermediate Greek (Homer) (3) Prerequisite: GREK 203 or equivalent

GREK 300 level course prerequisite: GREK 204 or equivalent Except that, with the instructor's permission, a student who plans to take no more than four semesters of Greek may substitute GREK 352 for GREK 204

GREK 351 Euripides (3)

GREK 352 The New Testament (3)

GREK 353 Herodotus (3)

GREK 354 Greek Lyric Poetry (3) Selections in translation of Greek literature from Homer to Lucian, with special emphasis on epic and dramatic poetry

GREK 400 level course prerequisite: The status of advanced undergraduate or graduate and consent of the instructor

GREK 401 Thucydides (3)

GREK 402 Greek Philosophers (3)

GREK 403 Greek Tragedy (3)

GREK 404 Greek Comedy (3)

GREK 405 Greek Oratory (3)

GREK 406 Greek Epigraphy (3)

GREK 488 Greek Readings (1-3) Prerequisite: permission of department The reading of one or more selected Greek authors Reports May be repeated with different content

GREK 490 Survey of Greek Literature (3) Greek literature, including authors genres and periods The reading of selections from many of the major authors combined with the study of the history of Greek literature Review of Greek grammar

GREK 499 Independent Study in Greek Language and Literature (3) Prerequisite: permission of department Repeatable to a maximum of six credits

GVPT — Government and Politics

GVPT 100 Principles of Government and Politics (3) A study of the basic principles and concepts of political science This course may be used to satisfy in part the social science requirement in the general education program

GVPT 170 American Government (3) This course is designed as the basic course in government and it or its equivalent is a prerequisite to other courses in the department as specified in the catalog It is a comprehensive study of government in the United States national, state and local

GVPT 210 Introduction to Public Administration and Policy (3) Prerequisite: GVPT 170 An introduction to the study of the administrative process in the executive branch with an examination of the concepts and principles of administration and their relationship to public policy The organizational structure theory and the behavior of participants in the administration of policy

GVPT 220 Introduction to Political Behavior (3) Prerequisite: GVPT 170 Development concepts and techniques of the behavioral approach to political science Comparison with traditional approaches

GVPT 231 Law and Society (3) Prerequisite: GVPT 170 A study of the basis of law and its relationship with various contemporary institutions such as the courts police, the legal profession, and society at large

GVPT 240 Political Ideologies (3) Prerequisite: GVPT 170 A survey and analysis of the leading ideologies of the modern world including anarchism, communism socialism, fascism, nationalism, and democracy

GVPT 260 State and Local Government (3) Prerequisite: GVPT 170 A study of the functioning and problems of state and local government in the United States, with illustrations from Maryland jurisdictions

GVPT 272 The Politics of Race Relations in the United States (3) Political dimension of historical and contemporary racial cleavage in the United States with particular emphasis on the post World War II period

GVPT 273 Introduction to Environmental Politics (3) A comprehensive overview of environmental problems, institutions, policies practices, and remedies found in present-day world society with special emphasis on environmental matters as objects of American public policy both domestic and foreign

GVPT 280 Comparative Politics and Governments (3) An introduction to the field of comparative politics including exposure to the analytic frameworks through which comparative studies of politics and governmental institutions can be undertaken and a survey of the salient types of political systems

GVPT 282 The Government and Politics of the Third World (3) A study of the governmental institutions processes and problems, and the socio-economic environment which are common to the great majority of the third world states of Africa The Middle East Asia, and Latin America and in which internal politics develop

GVPT 300 International Political Relations (3) A study of the major factors underlying international relations the methods of conducting foreign relations the foreign policies of the major powers, and the means of avoiding or alleviating international conflicts This course may be used to satisfy in part, the social science requirement in general education program

GVPT 306 Global Ecopolitics (3) Prerequisite: GVPT 170 Consideration of global problems such as the growth controversy agricultural productivity pollution resource depletion the energy crisis, and the general impact of science and technology on the world ecological socio-economic and political system with particular emphasis on such matters as objects of public policy

GVPT 341 Political Morality and Political Action (3) Prerequisite: GVPT 100 The ethical problems implicit in public actions by individuals groups and government Selected topics in contemporary political theory such as distribution, participation, and equality

GVPT 343 Political Themes in Contemporary Literature (3) An analysis of political concepts and issues in novels plays and poetry drawn largely from the twentieth century Among the themes considered in the course are the nature and limits of power conflict leadership submissiveness rebellion and loyalty

GVPT 375 Academic Field Research in Government and Politics (6) Field research is based on the data gathered by the student during his internship assignment Students conduct a major research project on a subject of interest to modern theoretical political science based on a research design approved by an academic adviser The course is open only to GVPT majors and intended to be taken concurrently with GVPT 377 The research conducted under GVPT 375 will be substantially different from the project done for GVPT 376

GVPT 376 Applied Field Research in Government and Politics (6) Students in this course participate as interns in an agency of government or in some other appropriate political organization Assignments are arranged to provide students with insights into both theoretical and practical aspects of politics Under the tutelage of the host agency and an academic adviser students conduct a major research project of mutual interest to the student and his host agency in the field of government and politics The course is open only to GVPT majors and must be taken concurrently with GVPT 377

GVPT 377 Seminar For Academic Interns (3) This seminar stresses the application of major concepts of political science as they apply to the realities of the political process Readings and discussion attempt to relate the experiences of the academic interns to appropriate literature on the subject of political decision-making This course is open only to GVPT majors and is intended for students concurrently enrolled in GVPT 376 and or 375

GVPT 388 Topical Investigations (3) Independent research and writing on selected topics in government and politics Prerequisite of upper division standing and consent of the instructor This course may be taken not more than twice for academic credit towards graduation

GVPT 390 Honors Seminar in American Government and Public Administration (3) Prerequisite admission to honors program Directed reading, reporting and discussion on the major materials of historical and contemporary relevance in the fields of American government and public administration

GVPT 391 Honors Seminar in Comparative Government and International Relations (3) Prerequisite admission to honors program Directed reading reporting and discussion centering on the major materials of historical and contemporary relevance in the fields of comparative government and international relations

GVPT 392 Honors Seminar in Public Law and Political Theory (3) Prerequisite admission to honors program Directed reading, reporting and discussion centering on the major materials of historical and contemporary relevance in the fields of public law and political theory

GVPT 393 Honors Seminar in Public Policy, Political Behavior, and Methodology (3) Prerequisite admission to honors program Directed reading, reporting and discussion centering on the major materials of historical and contemporary relevance in the fields of public policy and political behavior

GVPT 396 Introduction to Political Research (3) A required course for all honors students designed to emphasize library, research, methodology, and writing skills in political science and political philosophy A written proposal, bibliography and research design for an honors paper required of all students as a final project GVPT 396 should normally be taken in the junior year

GVPT 397 Honors Research (3) Prerequisite admission to GVPT honors program and GVPT 396 Individual reading and research Preparation of an original paper

GVPT 399 Seminar in Government and Politics (3) Reading, research, discussion, analysis, and writing in the area of politics. Both substantive issues and methodological approaches will be considered Primarily for government and politics undergraduate majors Not open to graduate students

GVPT 401 Problems of World Politics (3) Prerequisite GVPT 170 A study of governmental problems of international scope, such as causes of war, problems of neutrality, and propaganda Students are required to report on readings from current literature

GVPT 402 International Law (3) Prerequisite GVPT 170 A study of the basic character, general principles and specific rules of international law with emphasis on recent and contemporary trends in the field and its relation to other aspects of international affairs

GVPT 403 Law, Morality and War (3) Prerequisite GVPT 300 or 401 or PHIL 142 or consent of instructor An exploration of fundamental moral and legal issues concerning war Also offered as PHIL 403

GVPT 405 Defense Policy and Arms Control (3) Prerequisite GVPT 170 or permission of department Contemporary issues of military strategy and international security are covered, including nuclear war, conventional (limited) war, guerrilla insurgency, arms control, disarmament, moderation of war defense policy processes, and defense economics

GVPT 411 Public Personnel Administration (3) Prerequisite GVPT 410 or BMGT 360 A survey of public personnel administration, including the development of merit civil service, the personnel agency classification, recruitment examination techniques, promotion, service ratings, training, discipline, employee relations and retirement

GVPT 412 Public Financial Administration (3) Prerequisite GVPT 410 or ECON 450 A survey of governmental financial procedures, including processes of current and capital budgeting the administration of public borrowing, the techniques of public purchasing and the machinery of control through pre-audit and post audit

GVPT 413 Governmental Organization and Management (3) Prerequisite GVPT 410 A study of the theories of organization and management in American government with emphasis on new trends, experiments and reorganizations

GVPT 414 Administrative Law (3) Prerequisite GVPT 170 A study of the discretion exercised by administrative agencies, including analysis of their functions, their powers over persons and property, their procedures, and judical sanctions and controls

GVPT 417 Comparative Study of Public Administration (3) Prerequisite GVPT 280 or 410, or consent of instructor An introduction to the study of governmental administrative systems viewed from the standpoint of comparative typologies and theoretical schemes useful in cross-national comparisons and empirical studies of the politics of the administrative process in several nations Both western and non-western countries are included

GVPT 422 Quantitative Political Analysis (3) Prerequisite GVPT 220, or consent of instructor Introduction to quantitative methods of data analysis, including selected statistical methods, block analysis, content analysis, and scale construction

GVPT 423 Elections and Electoral Behavior (3) Prerequisite GVPT 170 or consent of instructor An examination of various topics relating to elections, the focus includes the legal structure under which elections are conducted, the selection and nomination process, the conduct of election campaigns, and patterns of political participation and voting choice in different types of elections

GVPT 426 Public Opinion (3) Prerequisite GVPT 170 An examination of public opinion and its effect on political action, with emphasis on opinion formation and measurement, propaganda and pressure groups

GVPT 427 Political Sociology (3) Prerequisite GVPT 220, or consent of instructor A study of the societal aspects of political life including selected aspects of the sociology of group formation and group dynamics, political association, community integration and political behavior presented in the context of the societal environments of political systems

GVPT 429 Problems in Political Behavior (3) Prerequisite GVPT 170. The problem approach to political behavior with emphasis on theoretical and empirical studies on selected aspects of the political process.

GVPT 431 Introduction to Constitutional Law (3) Prerequisite GVPT 170. A systematic inquiry into the general principles of the American constitutional system, with special reference to the role of the judiciary in the interpretation and enforcement of the federal constitution

GVPT 432 Civil Rights and the Constitution (3) Prerequisite GVPT 431 A study of civil rights in the American constitutional context, emphasizing freedom of religion, freedom of expression, minority discrimination, and the rights of defendants

GVPT 433 The Judicial Process (3) Prerequisite GVPT 170 An examination of judicial organization in the United States at all levels of government, with some emphasis on legal reasoning, legal research and court procedures

GVPT 434 Race Relations and Public Law (3) Prerequisite. GVPT 170 A political and legal examination of the constitutionally protected rights affecting racial minorities and of the constitutional power of the federal courts, congress, and the executive to define, protect and extend these rights

GVPT 435 Judicial Behavior (3) A study of judicial decision making at the state and national levels, drawing primarily on the more recent quantitative and behavioral literature

GVPT 436 The Legal Status of Women (3) Prerequisite GVPT 170 An examination of judicial interpretation and application of common, statutory, and constitutional law as these affect the status of women in American society

GVPT 441 History of Political Theory: Ancient and Medieval (3) Prerequisite GVPT 100 A survey of the principal political theories set forth in the works of writers before Machiavelli

GVPT 442 History of Political Theory--Medieval to Recent (3) Prerequisite GVPT 100 A survey of the principal theorists set forth in the works of writers from Michiavelli to J S Mill

GVPT 443 Contemporary Political Theory (3) Prerequisite GVPT 441 OR 442 A survey of the principal political theories and ideologies from Karl Marx to the present

GVPT 444 American Political Theory (3) Prerequisite GVPT 170 A study of the development and growth of American political concepts from the Colonial period to the present

GVPT 445 Russian Political Thought (3) Prerequisite GVPT 170 A survey and analysis of political ideas in Russia and the Soviet Union from early times to the present

GVPT 448 Non-Western Political Thought (3) Examination of works by major authors and general themes of political thought originating in Asia the Middle East, and Africa This is not a survey of all non-western political thought, but a course to be limited by the professor with each offering When repeated by a student consent of instructor is required

GVPT 450 Comparative Study of Foreign Policy Formation (3) Prerequisite GVPT 280 or 300, or consent of instructor An introduction to the comparative study of foreign policy formation structures and processes followed by a survey of the domestic sources of policy for major states A conspectus of substantive patterns of foreign policy in analytically salient types of systems is presented Domestic and global systemic sources of foreign policy are compared

GVPT 451 Foreign Policy of the U.S.S.R. (3) Prerequisite GVPT 170 A study of the development of the foreign policy of the Soviet Union, with attention paid to the forces and conditions that make for continuities and changes from Tsarist policies

GVPT 452 Inter-American Relations (3) Prerequisite GVPT 170 An analytical and historical study of the Latin-American policies of the United States and of problems in our relations with individual countries, with emphasis on recent developments

GVPT 453 Recent East Asian Politics (3) Prerequisite GVPT 170 The background and interpretation of recent political events in East Asia and their influence on world politics

GVPT 454 Contemporary African Politics (3) Prerequisite GVPT 170 A survey of contemporary development in the international politics of Africa, with special emphasis on the role of an emerging Africa in world affairs

GVPT 455 Contemporary Middle Eastern Politics (3) Prerequisite GVPT 170 A survey of contemporary development in the international politics of the Middle East, with special emphasis on the role of emerging Middle East nations in world affairs.

GVPT 457 American Foreign Relations (3) Prerequisite GVPT 170 The principles and machinery of the conduct of American foreign relations, with emphasis on the department of state and the foreign service, and an analysis of the major foreign policies of the United States

GVPT 460 State and Local Administration (3) Prerequisite GVPT 170. A study of the administrative structure, procedures and policies of state and local governments with special emphasis on the state level and on intergovernmental relationships, and with illustrations from Maryland governmental arrangments.

GVPT 461 Metropolitan Administration (3) Prerequisite GVPT 170 An examination of administrative problems relating to public services, planning and coordination in a metropolitan environment

GVPT 462 Urban Politics (3) Prerequisite: GVPT 170 Urban political process and institutions considered in the light of changing social and economic conditions

GVPT 471 Women and Politics (3) Prerequisite GVPT 170 or permission of instructor An examination of patterns of political participation among women and of problems of public policy especially relevant to women

GVPT 473 Legislatures and Legislation (3) Prerequisite GVPT 170 A comprehensive study of legislative organization procedure and problems The course includes opportunities for student contact with Congress and with the legislature of Maryland

GVPT 474 Political Parties (3) Prerequisite: GVPT 170 A descriptive and analytical examination of American political parties, nominations, elections, and political leadership

GVPT 475 The Presidency and the Executive Branch (3) Prerequisite GVPT 170. An examination of the executive, legislative and party roles of the president in the political process.

GVPT 479 Problems of American Public Policy (3) Prerequisite GVPT 170 The background and interpretation of various factors which affect the formation and execution of American public policy

GVPT 480 Comparative Political Systems (3) Prerequisite GVPT 280 and at least one other course in comparative government A study, along functional lines, of major political institutions, such as legislatures, executives, courts bureaucracies, public organizations, and political parties

GVPT 481 Government and Administration of the Soviet Union (3) Prerequisite GVPT 170 A study of the adoption of the communist philosophy by the Soviet Union, of its governmental structure and of the administration of government policy in the Soviet Union

GVPT 482 Government and Politics of Latin America (3) Prerequisite GVPT 170 A comparative study of the governmental systems and political processes of the Latin American countries with special emphasis on Argentina, Brazil Chile and Mexico

GVPT 483 Government and Politics of Asia (3) Prerequisite GVPT 280 or 453, or HIST 261, or 262 or HIFN 442, or 445 A comparative study of the political systems of China Japan India and other selected Asian countries

GVPT 484 Government and Politics of Africa (3) Prerequisite GVPT 170 A comparative study of the governmental systems and political processes of the African countries with special emphasis on the problems of nation-building in emergent countries

GVPT 485 Government and Politics of the Middle East (3) Prerequisite GVPT 170. A comparative study of the governmental systems and political processes of the Middle Eastern countries with special emphasis on the problems of nation-building in emergent countries

GVPT 486 Comparative Studies in European Politics (3) Prerequisite GVPT 280, or consent of instructor A comparative study of political processes and governmental forms in selected European countries

GVPT 487 The Government and Politics of South Asia (3) Political systems and governments of such countries as India Pakistan BanglaDesh, Ceylon, and Nepal

GVPT 492 The Comparative Politics of Race Relations (3) Impact of government and politics on race relations in various parts of the world The origins, problems, and manifestations of such racial policies as segregation, apartheid integration, assimilation, partnership, and nonracialism will be analyzed

HEBR — Hebrew

HEBR 101 Intensive Elementary Hebrew (4) Five hours per week Limited to students with no reading knowledge of Hebrew Modern Israeli Hebrew Emphasis on conversation Study of linguistic structure and development of audio-lingual writing and reading ability Credit may not be earned for both HEBR 101 and HEBR 111

HEBR 111 Elementary Hebrew I (6) Six recitations per week Modern Israeli Hebrew Emphasis on converstion Study of linguistic structure and development of audio-lingual, writing and reading ability

HEBR 112 Elementary Hebrew II (6) Prerequisite HEBR 111 or equivalent Six recitations per week Continuation of HEBR 111

HEBR 211 Intermediate Hebrew I (6) Six recitations per week Prerequisite HEBR 112 or equivalent Study of linguistic structure, further development of audio-lingual, reading, writing and speaking skills Reading of texts and newspapers designed to give some knowledge of Hebrew life thought and culture

HEBR 212 Intermediate Hebrew II (6) Six recitations per week Prerequisite HEBR 211 or equivalent Continuation of HEBR 211

HEBR 223 The Hebrew Bible: Narrative (3) Selected readings from narrative sections of the Hebrew Bible stressing the new literary approaches to the biblical text In English no knowledge of Hebrew required

HEBR 224 The Hebrew Bible: Poetry and Rhetoric (3) Readings of poetic and prophetic selections from the Hebrew Bible Analysis of devices and their rhetorical effect Comparison of biblical poetry with other poetry of the ancient near east In English, no knowledge of Hebrew required

HEBR 231 Jewish Literature in Translation (3) Selections from the Bible Talmud medieval and modern sources illustrating the basis and diversity of Jewish thought

HEBR 298 Special Topics in Jewish Studies (3) Prerequisite as announced in the Schedule of Classes for each topic Repeatable for six (6) credits, provided the content is different

HEBR 313 Conversation and Composition I (3) Prerequisite HEBR 212 or equivalent A practical language course recommended for all students continuing with Hebrew Review of grammar and composition Selected readings Oral and written exercises

HEBR 314 Conversation and Composition II (3) Prerequisite HEBR 313 or equivalent A practical language course recommended for all students continuing with Hebrew Review of grammar and composition Selected readings Oral and written exercises

HEBR 321 Survey of Hebrew Literature 1 (3) Prerequisite HEBR 301 or equivalent Haskalah (enlightenment) period Selections from prose and poetry of Michal, Mapu, Gordon, Mendele Hebrew Neo-Classicism and Romanticism Reading in Hebrew Discussions in Hebrew and in English

HEBR 322 Israeli Literature in Translation (3) A study of the major works of Israeli fiction and poetry which explore aspects of the society and culture of modern Israel and its European background war and peace, the individual and the community, tradition and modernity, generational conflict

HEBR 333 Hebrew Civilization (In English) (3) Trends in the cultural, social and literary history of the Jews from their earliest experiences as a people until Maccabean times Readings and instruction in English

HEBR 334 Hebrew Civilization (in English) (3) Trends in the cultural, social and literary history of the Jews from their encounter with Hellenism until the end of the Talmudic era in late antiquity Readings and instruction in English

HEBR 381 Advanced Conversation and Composition (3) Prerequisite HEBR 314 or consent of instructor Concentrated practice in spoken and written Hebrew

HEBR 382 Readings in Hebrew Newspapers and Periodicals (3) Prerequisite HEBR 314 or permission of instructor Current events, editorials, theatrical reports, book reviews, and scholarly articles Conducted in Hebrew

HEBR 401 Introduction to Classical Hebrew I (3) Readings in the Bible and other classical texts in original Hebrew Emphasis on classical grammar and vocabulary, and reading of textual passages.

HEBR 402 Introduction to Classical Hebrew II (3) Prerequisite HEBR 401 or equivalent Continuation of HEBR 401

HEBR 403 History of the Hebrew Language (3) Prerequisite HEBR 201 or permission of instructor Survey of the history of Hebrew from the period of the Bible through modern Israeli Hebrew Readings in Hebrew

HEBR 431 Modern Hebrew Literature (3) Prerequisite HEBR 301 or equivalent Selected readings from the major Hebrew prose writers of the 20th century such as J Steinberg, Burla, Berkovitz, Shofman and Agnon describing traditional Jewish life in the Diaspora Mileu and in the land of Israel

HEBR 432 Contemporary Hebrew Literature (3) Prerequisite HEBR 301 or equivalent The problems facing modern man as reflected in the writings of Agnon, Hazaz, Meged, Yehoshua, Amichai, and others Training in literary criticism Reading of periodicals dealing with current literary trends

HEBR 441 Studies in Classical Hebrew and Epigraphy (3) Prerequisite HEBR 115 or equivalent Linguistic peculiarities of Classical Hebrew from Pre-Biblical epigraphic records to the Dead Sea Scrolls Application of the method of literary form criticism to epic poetry and Thanksgiving songs, cultic formulae, historical annals and narratives

HEBR 442 Classical Hebrew Literature (3) Prerequisite HEBR 115 or knowledge of Classical Hebrew Readings in the Hebrew text of the Bible and related texts Emphasis on the issues and methodology of modern biblical scholarship

HEBR 471 Readings in Rabbinic Hebrew (3) Prerequisite HEBR 115 or permission of instructor Introductory readings in Mishnaic and Talmudic Hebrew texts Language of instruction English all texts in Hebrew

HEBR 472 Readings in Medieval Hebrew (3) Prerequisite HEBR 115 or permission of instructor Introductory readings in Medieval Hebrew texts Language of instruction English, all texts in Hebrew

HEBR 498 Special Topics in Hebrew (3) Prerequisite as announced in the Schedule of Classes for each topic Repeatable for a maximum of six credits provided the content is different

HESP — Hearing and Speech Sciences

HESP 120 Introduction to Linguistics (3) An introduction to the scientific study of natural language with focus on the basic concepts of phonology syntax semantics and pragmatics with subsequent attention to the applied aspects of linguistic principles

HESP 202 Introduction to Hearing and Speech Sciences (3) Introduction to phonetics the physiological bases of speech production and reception and the physics of sound

HESP 300 Introduction to Psycholinguistics (3) Prerequisite HESP 202 An introduction to current theories of language and an investigation of their relationship to human communication behavior Survey of the experimental literature relating to this question

HESP 305 Anatomy and Physiology of the Speech Machanism (3) Prerequisite HESP 202 Anatomy physiology, and neurology of speech mechanism

HESP 311 Anatomy, Pathology and Physiology of the Auditory System (3) Prerequisite HESP 202 Gross anatomy of the ear and pathways for transmission of sound energy through the peripheral and central auditory system Causes, development and effects of pathological conditions contributing to temporary or chronic hearing impairments

HESP 400 Speech and Language Development in Children (3) Prerequisite HESP 300 Analysis of the normal processes of speech and language development in children

HESP 401 Introduction to Communication Disorders (3) Disorders of hearing, language and speech for non-majors Communication disorders in children and adults, with emphasis on etiologies characteristics, assessment and management

HESP 402 Speech Pathology I (3) Prerequisite HESP 300 Etiology, assessment and treatment of language and phonological disorders in children

HESP 403 Introduction to Phonetic Science (3) Prerequisite HESP 305 An introduction to physiological, acoustic and perceptual phonetics broad and narrow phonetic transcription current models of speech production and perception

HESP 404 Speech Pathology II (3) Prerequisite HESP 305 Etiology assessment and therapeutic management of phonation resonance, and fluency disorders in children and adults

HESP 406 Speech Pathology III (3) Prerequisite HESP 303, 305 Survey of the dysarthrias and aphasias in adults from an interdisciplinary point of view

HESP 407 Bases of Hearing Science (3) Prerequisite HESP 311 Fundamentals of hearing including the physics of sound, anatomy and physiology of peripheral and central auditory nervous system, psychophysical procedures used in measurement of auditory sensation and perception and topics in psychological acoustics

HESP 408 Principles and Methods in Speech-Language Pathology and Audiology (3) Prerequisite HESP 402, 411 The principles underlying the treatment of speech, language and hearing disorders in children and adults

HESP 411 Introduction to Audiology (3) Prerequisite HESP 311 An introduction to the field of audiology Evaluation and remediation of the hearing-handicapped

HESP 417 Principles and Methods in Speech-Language Pathology and Audiology (3) Prerequisite HESP 402, 411 The principles underlying the treatment of speech, language and hearing disorders in children and adults

HESP 418 Clinical Practice in Speech-Language Pathology and Audiology (3) Prerequisites HESP 417 Supervised observation with some direct participation in clinical methods for the treatment of disorders of articulation, fluency child and adult language evaluation and habilitation rehabilitation of hearing impaired children and adults Repeatable to a maximum of six credits

HESP 438 Seminar: Special Issues in Early Childhood Special Education (1-3)

HESP 498 Saminar (3) Prerequisite permission of the instructor Selected topics in human communication and its disorders Repeatable to a maximum of six semester hour credits providing the content is different

HESP 499 Independent Study (1-3) Prerequisite permission of instructor A directed study of selected topics pertaining to human communication and its disorders May be repeated for a maximum of six semester hour credits

HIST — History

HIST 101 Great Ideas, Events and Personalities in History (3) An introduction to history including both theories of historical change and detailed specific examples focusing on crucial events ideas or personalities illustrative of that change

HIST 106 American Jewish Experience (3) History of the Jews in America from colonial times to the present Emphasis on the waves of migration from Germany and Eastern Europe the changing nature of the American Jewish community and its participation in American social economic and political life

HIST 110 The Ancient World (3) Formerly HIST 130 Interpretation of select literature and art of the ancient Mediterranean world with a view to illuminating the antecedents of modern culture religion and myth in the ancient near East Greek philosophical scientific and literary invention and the Roman tradition in politics and administration

HIST 111 The Medieval World (3) Formerly HIST 131. The development of Europe in the Middle Ages, the role of religious values in shaping new social, economic, and political institutions, medieval literature, art and architecture

HIST 112 The Rise of the West: 1500 - 1789 (3) Formerly HIST 132 History of early modern Europe Development of the national consciousness of European peoples Evolution of state power and bureaucracy, economic institutions, art, literature, science and religion

HIST 113 Modern Europe: 1789 - Present (3) Formerly HIST 133 Evolution of modern nation states Industrial-economic structure and demography Emergence of modern secular society

HIST 120 Islamic Civilization (3) Formerly HIST 280 Islamic civilization The major institution of Islam Pre-Islamic Arabia, rise of Muhammad, basic tenets of Islam, Islamic religious law, and sectarian developments

HIST 122 African Civilization (3) Formerly HIST 290 Sub-Saharan Africa from prehistoric times to the end of the colonial era Neolithic civilizations, major migrations, political and commercial developments in pre-colonial Africa

HIST 126 Jewish Civilization (3) Formerly HIST 105 Jewish history, culture, and society from Biblical times to the present.

HIST 141 Western Civilization I (3) Recommended for students seeking a two-semester survey course of European history from antiquity to the twentieth century Political, social and intellectual developments that form the values and institutions of western world Ends with the period of reformation May be taken independently of HIST 142 (Students previously enrolled in HIST 241 not admitted to this course)

HIST 142 Western Civilization II (3) Recommended for students seeking a two-semester survey course of European history from antiquity to the twentieth century Begins with period of the reformation and ends with modern times and may be taken independently of HIST 141 (Students previously enrolled in HIST 242 not admitted to this course)

HIST 156 History of the United States to 1865 (3) The United States from colonial times to the end of the Civil War Establishment and development of American institutions

HIST 157 History of the United States Since 1865 (3) The United States from the end of the Civil War to the present Economic, social, intellectual, and political developments Rise of industry and emergence of the United States as a world power

HIST 170 The Humanities I (3) Formerly HIST 144 Cultural development of western civilization from pre-historic times to the Renaissance Influences on the common cultural heritage of western civilization.

HIST 171 The Humanities II (3) Formerly HIST 145 and HIST 252 Cultural development from the Renaissance to the present Influences on the common cultural heritage of modern western civilization

HIST 174 Introduction to the History of Science (3) Formerly HIST 200 Major issues in the development of modern science. Examples of theories and discoveries, and the interaction of science with philosophy

HIST 175 Science and Technology in World History: Space/Time/Man/ Woman (3) Formerly HIST 201. Selected topics in the history of science and technology and their relationship to society organized around gender and race

HIST 176 Modern Business History (3) Formerly HIST 115 Evolution of the modern business system in Europe and America Modern corporations and banks and their relations with government and the rest of society

HIST 178 Biography in History (3) Repeatable to 6 credits if content differs Detailed investigations in the lives, times, and works of important and visible figures in world history Concern for both the theory of the individual in history and close examination of the single person Course content changes semester to semester

HIST 180 The Chinese World (3) An introduction to China, both traditional and modern The various aspects of Chinese culture, including the language, family, history, art, and agriculture

HIST 206 The Holocaust of European Jewry (3) Roots of Nazi Jewish policy in the 1930's and during World War II, the process of destruction and the implementation of the 'final solution of the Jewish problem' in Europe, and the responses made by the Jews to their concentration and annihilation

HIST 210 Women in America to 1880 (3) An examination of the economic, family and political roles of colonial, slave, immigrant and frontier women in America from pre-industrial colonial period through the early stages of nineteenth century industrialization and urbanization.

HIST 211 Women in America Since 1880 (3) An examination of women's changing roles in working class and middle class families, the effects of industrialization on women's economic activities and status, and women's involvement in political and social struggles including those for women's rights, birth control, and civil rights.

HIST 212 Women in Western Europe, 1750-Present (3) An analysis of the economic, family and political roles of European women from 1750 to the present The effects of industrialization on women's work and status, the demographic parameters of women's lives, and women's participation in political events from market riots to suffrage struggles

HIST 214 Pre-honors Colloquium in Early American History (3) Selected reading in Early American history with emphasis on independent discussion and writing May be taken for credit by students exempt from American history Permission of instructor required

HIST 215 Pre-honors Colloquium in Modern American History (3) Selected readings in modern American history with emphasis on independent study, discussion and writing May be taken for credit by students exempt from American history Permission of instructor required

HIST 219 Special Topics in History (3)

HIST 224 Modern Military History, 1494-1815 (3) Survey of the military history of Europe through an examination of the economic, financial, strategic, tactical, and technological aspects of the development of military institutions and warfare from the dynastic wars of the Valois and Habsburgs to the national wars of the French Revolution and Empire.

HIST 225 Modern Military History, 1815-Present (3) The military history of Europe through an examination of the economic, financial, strategic, tactical, and technological aspects of the development of military institutions and warfare from the Congress of Vienna in 1815 to the present

HIST 234 History of Britain to 1485 (3) British history from Roman times to the 17th century The Anglo-Saxon, Scandanavian and Norman invasions, the coming of Christianity; Magna Carta, the development of Parliament, legal institutions and the Common Law, the decline of medieval kingship

HIST 235 History of Britain 1461 to 1714 (3) British history from the War of the Roses to the Hanoverian succession, Yorkist and Tudor society and politics, the Renaissance and Reformations in England, Henry VIII through Elizabeth, 17th century crises and revolutions, intellectual and cultural changes, the beginnings of empire, the achievement of political and intellectual order

HIST 236 History of Britain 1688 to Present (3) British history from the Glorious Revolution of 1688 to the present The revolution of 1688; the structure of 18th century society and politics, economic and social change in the industrial revolution, 19th and 20th century political and social reform; imperialism, the impact of the First and Second World Wars on British society

HIST 237 Russian Civilization (3) An overview of Russian history stressing the main lines of development of the Russian State and the evolution of Russian culture to the present day

HIST 250 Latin American History I (3) Latin America from pre-Columbian Indian cultures to the beginnings of the wars for independence (ca 1810), covering cultural, political, social, and economic developments.

HIST 251 Latin American History II (3) The republics of Latin America since independence, with special emphasis upon their social economic, and cultural development as third world nations

HIST 255 Afro-American History (3) A survey of the Negro in American history, covering the African background, slavery, the role of the Negro in the social, political, economic, cultural and artistic life of the United States Emphasis will be placed on the enduring themes and the black experience in American society, including contemporary problems in race relations.

HIST 264 Social and Cultural History of Early America (3) American social experience from colonial times through the Civil War The development of colonial societies, the economic and religious bases of 18th century life, the social character of the revolution, the growth of cities, rise of immigration, and maturation of economic enterprise in Antebellum America, and the social causes and consequences of the Civil War

HIST 265 Social and Cultural History of Modern America (3) American social history from Civil War to the present Examination of a network of social interaction accompanying the rise of male-dominated, business-oriented urban culture after the Civil War Concentration on the major social forces clashing and cooperating to produce the modern United States 'business republicanism', urban workers, intellectuals, rural populists, immigrants (especially Jewish), Black-Americans; and struggling women liberators The swift crosscurrents of a 'free-society' still wrestling with inherent contradictions of the democratic experiment begun in the American colonies some 350 years ago

HIST 266 The United States in World Affairs (3) A study of the United States as an emerging world power and the American response to changing status in world affairs Emphasis on the relationship between internal and external development of the nation.

HIST 275 Law and Constitutionalism in American History (3) An exploration of the relationship between law and the social and political order between 1750 and 1950 Discussion of important historical issues--religious liberty economic development, slavery and the Civil War, the political economy of industrialization, the creation of the modern state--from a legal and constitutional perspective

HIST 282 History of the Jewish People I (3) Political, economic, social and cultural development within Jewish history from the Biblical period to the late Middle Ages Special attention to the emergence of Rabbinic Judaism and its subsequent encounter with medieval Christian and Islamic civilizations Students who have previously received credit for HIST 354 and HIST 312 may not enroll

HIST 283 History of the Jewish People II (3) Political, economic, social and cultural development within Jewish history from the end of Middle Ages to the present Special attention to twentieth century developments including the Nazi holocaust and its aftermath, the Zionist movement and the creation of the State of Israel; rise of the contemporary American Jewish community Students who have previously received credit for HIST 355 and HIST 313 may not enroll

HIST 284 East Asian Civilization I (3) An interdisciplinary survey of the development of East Asian cultures An historical approach drawing on all facets of East Asian traditional life, to gain an appreciation of the fascinatingly different and complex cultures of the area

HIST 285 East Asian Civilization II (3) A survey of the historical development of Modern Asia since 1700 Primarily concerned with the efforts of East Asians to preserve their traditional cultures in the face of western expansion in the eighteenth and nineteenth centuries, and their attempts to survive as nations in the twentieth century

HIST 301 Women and Industrial Development (3) Analysis of women's role in the industrial state Emphasis on the process of industrialization and its effect on women s lives since the industrial revolution. Comparisons of women in industrial and non-industrial settings

HIST 304 Modern Church History (3) Introduction to major developments and problems of modern church history primarily in Europe from the 'waning' of the confessional age in the 17th and 18th centuries through the 20th century

HIST 305 The Eastern Orthodox Church: Its Cultural History (3) A study of the development of the Christian church in the Near East and Eastern Europe from the conversion of constantine to the present Emphasis will be on the relations between church and state in various periods and on the influence of Eastern Christianity on the cultures of traditionally eastern orthodox nations.

HIST 306 History of Religion in America (3) A history of religion, religious movements, and churches in America from the early colonial period to the present, with special attention to the relation of church and society

HIST 308 Religion in America: Historical Topics (3) Selected aspects of the American religious experience in detail. May be repeated to a maximum of six semester hours when content differs.

HIST 309 Proseminar in Historical Writing (3) Discussions and research papers designed to acquaint the student with the methods and problems of research and presentation The student will be encouraged to examine those phases of history which he regards as his specialties

HIST 310 The Practice of History (3) Prerequisite one course in history Methods of historical research and presentation Not open for credit to students majoring in history

HIST 311 Approaches to the Past (3) Prerequisite one course in history Analysis of various theories and schools of historical interpretation Not open for credit to students majoring in history

HIST 312 Crisis and Change in the United States (3) Prerequisite one course in history Major historical crises, controversies, and readjustments in the United States

HIST 313 Crisis and Change in European Society (3) Prerequisite one course in history Major historical crises, controversies, and readjustments in European society

HIST 314 Crisis and Change in the Middle East and Africa (3) Prerequisite one course in history Major historical crises, controversies, and readjustments in the Middle East and Africa

HIST 315 Crisis and Change in East Asia (3) Prerequisite one course in history Major historical crises, controversies, and readjustments in East Asia

HIST 316 Crisis and Change in Latin America (3) Prerequisite one course in history Major historical crisis, controversies, and readjustments in Latin America

HIST 317 The Professions and Society (3) Prerequisite one course in history The relationship of science, technology, medicine, law, or education to other historical developments and controversies in particular societies

HIST 319 Special Topics in History (3)

HIST 324 Classical Greece (3) The ancient Greeks from Homer to Socrates, 800-400 B.C. Society and religion of the city-state, the art and literature of Periclean Athens, the Peloponnesian war, and the intellectual circle of Socrates. Not available for students who have taken HIST 420.

HIST 325 Alexander the Great and the Hellenistic Age (3) History of the Greeks 400-30 B.C. Alexander and the changes he wrought in the Mediterranean world, the rise of monarchies and leagues, new directions in religion, art, literature, and science, and Hellenization of the Near East, including the Jews. Not available for students who have taken HIST 420.

HIST 326 The Roman Republic (3) Ancient Rome 753-44 B.C. From its founding to the assassination of Julius Caesar. Rome's conquest of the Mediterranean world, the social and political forces which brought it about, and the consequent transformation and decline of the republic. Not available for students who have taken HIST 421.

HIST 327 The Roman Empire (3) Roman history from Augustus to Heraclius, 44 B.C.-A.D. 641. The Imperial court and government, the diversity of culture in provinces and cities and the progress of Romanization, Roman religion and its transformation in late antiquity, the Roman army and defense of the frontiers. Not available for students who have taken HIST 421.

HIST 330 Medieval Civilization I (3) Europe from the fall of Rome to the death of Charlemagne. The economic, social and intellectual movements which shaped the civilization of the Latin West, including the rise of Christianity and the church, the creation of a feudal nobility, and the foundation of European states. Developments in art and literature. Readings from sources when available in translation.

HIST 331 Medieval Civilization II (3) Medieval civilization in the 12th and 13th centuries: the Renaissance of the 12th century, the rise of universities, gothic architecture, the European state system, medieval parliaments and scholastic learning and culture. Emphasis on cultural and political developments of the high Middle Ages with study of the principal sources of medieval thought and learning, art and architecture and political theory. Recommended as a sequel to HIST 411.

HIST 332 Europe During the Renaissance and Reformation I (3) Continental Europe from 1450 to 1650: development and spread of Renaissance culture; growth in the powers of central government, economic expansion and beginnings of overseas colonization, division of Western Christendom into two rival religious camps. Particular emphasis on the Protestant and Catholic reformations and their consequences for Europe's political, social, and cultural development. Renaissance and reformation, 1450-1555. The age of religious wars, 1555-1650.

HIST 333 Europe During the Renaissance and Reformation II (3) Continuation of HIST 332.

HIST 334 The Age of Absolutism, 1600-1715 (3) Europe in the age of Louis XIV with emphasis upon social, religious, and cultural developments.

HIST 335 Society, Ideas and Culture in the Old Regime, 1715-1789 (3) Europe during the French revolution and Napoleonic period. Intellectual, social, and cultural movements in revolutionary Europe.

HIST 336 Europe in the 19th Century, 1815-1919 (3) The political, economic, social, and cultural development of Europe from the Congress of Vienna to the First World War.

HIST 337 Europe in the World Setting of the 20th Century (3) Political, economic and cultural developments in 20th century Europe with special emphasis on the factors involved in the two world wars and their global impacts and significance.

HIST 340 Eastern Europe Under Communism (3) The evolution of communist regimes and socialist societies in Poland, Czechoslavakia, Hungary, East Germany, Romania and Bulgaria with separate treatment of Yugoslavia. Emphasis on pre-1945 continuity and post-1945 change.

HIST 341 History of Anti-Semitism (3) The historical development of anti-Semitism in its European context. Anti-Semitism both as a set of ideas and as a political movement from the ancient era to the present, with emphasis on the modern era.

HIST 342 Fascism: Theory and Practice (3) The origins and history of fascism in Europe, 1918-1945. Emphasis divided between the industrialized (or industrializing) nations and the largely agrarian countries of Europe. The rise of fascism in other parts of the world.

HIST 344 The Russian Revolutions of 1917 (3) A close examination of the historical background, the doctrines, the immediate causes, the events, and the results of the February and October revolutions.

HIST 346 Social and Cultural History of Europe (3) An exploration of social structure, life styles, rituals, symbols, and myths of the peoples of Europe.

HIST 347 History of Crime and Punishment (3) Emphasis on the historical development of law enforcement agencies, criminal jurisdictions and trial procedure, 1500-1800. Nature of principle felonies and major trends in crime, penal theory and practice in historical perspective.

HIST 350 History of Baltimore (3) Social, economic, spatial, and political evolution of Baltimore and its inhabitants from first settlement to the present.

HIST 351 Social History of Washington, D.C. (3) Development of the "resident city" of Washington: neighborhoods, schools, places of worship, economic establishments, and local population groups.

HIST 360 American Colonial History (3) Colonial America from Jamestown to 1763. The establishment of the various colonies with emphasis on the reasons for the instability of colonial society to 1689, the emergence of stable societies after 1689, the development of colonial regionalism, political institutions, social divisions, education, urban and frontier problems in the eighteenth century.

HIST 361 The American Revolution (3) The background and course of the American revolution through the formation of the Constitution. Emphasis on the impact of the political movement and war years on the character of American society.

HIST 362 The Formative Period in America, 1789-1824 (3) The evolution of the federal government, the origins of political parties, problems of foreign relations in an era of international conflict, beginnings of the industrial revolution in America, and the birth of Sectionalism.

HIST 363 The Middle Period of American History, 1824-1860 (3) An examination of the political history of the United States from Jackson to Lincoln with particular emphasis on the factors producing Jacksonian Democracy, Manifest Destiny, the Whig Party, the anti-slavery movement, the Republican Party and Secession.

HIST 364 Reconstruction and the New Nation (3) Sectional and class conflicts and their impact on American life and institutions from the Civil War through the gilded age; social, economic and political reconstruction of the Union; industrialization, urbanization and technological changes.

HIST 365 The Progressive Period: the United States, 1896-1919 (3) How the Wm. McKinley-T.Roosevelt-W.H. Taft-Woodrow Wilson administrations dealt with the trust, money, tariff, and black issues. World War I is treated briefly.

HIST 366 Between the Wars: the United States, 1919-1945 (3) The American way of life in the 1920's and 1930's, the Great Depression, New Deal, and a brief consideration World War II.

HIST 367 The United States Since World War II (3) American history from the inauguration of Harry S. Truman to the present with emphasis upon politics and foreign relations, but with consideration of special topics such as radicalism, conservation, and labor.

HIST 370 The Jews in Their Homeland in Antiquity (3) History of the Jews in the framework of the Persian Empire, the hellenistic kingdoms, and the Roman and Byzantine Empires. The Jewish state and Jewish nationalism. Cultural and religious developments under the impact of hellenization.

HIST 371 The Jewish Diaspora in Antiquity (3) History of the Jews outside their homeland in pre-Islamic times, concentrating on the Greco-Roman West and the Parthian-Sasanian East. Topics include assimilation and survival, antisemitism and missionizing, patterns of organization and self-rule, religious and cultural development.

HIST 374 Modern Jewish History I: the Road to Emancipation, 1650-1870 (3) Social, political, economic, and cultural change in the Jewish world since 1650. Emphasis on emancipation, assimilation, and new forms of Jewish identity in Western and Eastern European Jewry from the 17th to the 20th centuries.

HIST 375 Modern Jewish History II: World Jewry Since 1870 (3) Continuation of HIST 374.

HIST 376 History of Zionism and the State of Israel (3) Ideological and political factors leading to the establishment of a secular Jewish state in 1948. Zionist thought of Herzl, Ahad Ha-am, the socialist and religious Zionist and the revisionists; diplomatic activities; Arab-Israel conflict; post-1948 Israeli society.

HIST 380 American Relations With China and Japan, 1740-1970 (3) American political, economic, and cultural relations with China and Japan from the American colonial era to the present. Diplomacy and power politics; Christian missions; immigration and exclusion; overseas education; art and literature; trade; investment; technology.

HIST 390 Middle East I (3) A survey of the political, cultural and institutional history covering the period up to the Tenth century.

HIST 391 Middle East II (3) A survey of the political, cultural and institutional history covering the period up from the tenth century to the beginning of the nineteenth century.

HIST 392 History of the Contemporary Middle East (3) The rise of sovereign nation-states; modernization, westernization and secularization in a traditional society; shifting political and economic power groupings within a regional and global context.

HIST 395 Honors Colloquium I (3) Enrollment limited to students admitted by the departmental honors committee. Discussion of reading and written work in weekly seminar meetings.

HIST 396 Honors Colloquium II (3) Continuation of HIST 395.

HIST 398 Honors Thesis (3)

HIST 401 The Scientific Revolution: From Copernicus to Newton (3) Major events in the history of physical science during the 16th and 17th centuries and their relation to philosophy, religion and society in Western Europe. The attack on ancient and medieval scientific theories, the transition from geocentric to heliocentric astronomy, discoveries of Kepler, Galileo and Newton and the establishment of the mechanical philosophy that dominated early modern science.

HIST 402 The Development of Modern Physical Science: From Newton to Einstein (3) The history of physics in the 18th and 19th centuries, including some of its connections with mathematics, technology, chemistry and planetary science. Emphasis on internal technical developments in physical theory, with some discussion of experimental philosophical and sociological aspects. This is the second part of a three-semester sequence (HIST 401, HIST 402, PHYS 490), each part may be taken independently of the others. For HIST 402 the prerequisites are MATH 110 and PHYS 112 OR 117 or equivalent competence in mathematics and physics.

HIST 403 20th Century Revolutions in the Physical Sciences (3) MATH 110 and PHYS 112 or 117 or equivalent competence in mathematics and physics. Analysis of major changes in knowledge of the physical world, including quantum theory, atomic structure, relativity, cosmology, and continental drift/plate tectonics; theories about the nature of scientific revolutions.

HIST 404 History of Modern Biology (3) The internal development of biology in the nineteenth and twentieth centuries, including evolution, cell theory, heredity and development, spontaneous generation and mechanism-vitalism controversies. The philosophical aspects of the development of scientific knowledge and the interaction of biology with chemistry and physics.

HIST 407 History of Technology (3) The changing character of technology in modern history beginning with the Middle Ages, but concentrating on the Industrial Revolution and its aftermath; the nature of technological knowledge, the sources of technological change, and the impact of technology on all aspects of our culture.

HIST 409 Topics in the History of Science and Technology (3) Selected topics in the history of science and technology. May be repeated to maximum of six semester hours.

HIST 410 Introduction to Archives I (3) Prerequisite: Consent of department. Corequisite: HIST 411. History of the basic intellectual problems relating to archives and manuscript repositories, emphasis on problems of selection, access, preservation, inventorying and editing as well as the variety of institutions housing documents.

HIST 411 Introduction to Archives II (3) Prerequisite: Consent of department. Corequisite: HIST 410. Practical experience through placement in cooperating archives or manuscript repositories in the Baltimore-Annapolis-Washington, D.C. areas. Assignments to specific projects based on intellectual interest of students.

HIST 412 Readings in Psycho-history (3) Application of psychological theories to the study of historical personalities and collective behavior; survey of relevant personality theorists, and an evaluation of recent contributions.

HIST 413 History of Medicine and Public Health (3) The history of medicine and public health from primitive times to the present, covering major medical theories, therapeutics, and techniques; the evolution of the medicine man or priest-physician into a professional medical practitioner and the close relationship between medicine and society.

HIST 414 History of European Ideas I (3) Review of the basic western intellectual traditions as a heritage from the ancient world. Selected important currents of thought from the scientific revolution of the 16th and 17th centuries down to the end of the 18th century.

HIST 415 History of European Ideas II (3) A continuation of HIST 414 emphasizing 19th and 20th century thought.

HIST 418 Jews and Judaism: Selected Historical Topics (3) Repeatable to a maximum of 6 credit hours if topics differ.

HIST 419 Special Topics in History (3) May be repeated to a maximum of nine hours.

HIST 422 Byzantine Empire I (3) The Eastern Roman Empire from Constantine the Great to the crisis of the ninth century The development of the late Roman state into the Medieval Christian Byzantine empire and the evolution of a distinctive Byzantine culture

HIST 423 Byzantine Empire II (3) The Byzantine empire from the Macedonian renaissance to the conquest of Constantinople by the Turks in 1453 the Byzantine empire at its height, the crusades Byzantium as a minor power and its contributions to the Renaissance and the cultures of Russia and the Balkans

HIST 424 History of Russia to 1801 (3)

HIST 425 History of Russia From 1801 - 1917 (3) A continuation of HIST 424

HIST 426 Age of Industry: Britain 1760 to 1914 (3) An economic, social, political and cultural analysis of Britain in the age of her industrial supremacy The nature of the first industrial revolution, the emergence of modern social classes the cultural impact of industrialization, politics and society in the early and mid-nineteenth century Victorianism and its critics, imperialism and politics, high and low culture the rise of labor, social and political tensions 1910-1914

HIST 427 Age of Decline: Britain 1914 to Present (3) British society since the First World War The social, cultural economic and political impact of the First World War, labor and politics in the 1920s and 1930s, the inter war depression, appeasement and foreign policy, the social impact of the Second World War, the welfare state and nationalization of industry the dissolution of Empire, the emergence of a consumer society, social criticism in 1950s, the economic and political problems of the 1960s and 1970s

HIST 430 Tudor England (3) An examination of the political, religious and social forces in English life, 1485-1603, with special emphasis on Tudor government, the English reformation and the Elizabethan era

HIST 431 Stuart England (3) An examination of the political, religious and social forces in English life 1603-1714, with special emphasis on Puritanism and the English revolutions

HIST 432 Britain in the 18Th Century (3) Developments in Great Britain from the revolution of 1688 to the end of the Napoleonic wars

HIST 435 Constitutional and Legal History of Britain (3) Not open to students who have completed HIST 434 or HIST 435 Constitutional and legal developments in England from the Anglo-Saxon settlement to the present day The rise and decline of monarchical government, the development of parliament, and the emergence of systematized, democratic government The origins of the common law and legal profession, the development of a centralized judicial system, and the emergence of modern trial procedures Survey knowledge of English history desirable

HIST 436 French Revolution and Napoleon (3) The causes and course of the French Revolution with emphasis on the struggle among elites, popular intervention, the spread of counterrevolution, the Terror as repression and popular government, the near collapse of the Republic, and the establishment and defeat of dictatorship

HIST 437 Modern France from Napoleon to DeGaulle (3) The changing political and cultural values of French society in response to recurrent crises throughout the 19th and 20th centuries Students should have had some previous survey of either western civilization or European history

HIST 440 Germany in the Nineteenth Century, 1815-1914 (3) The development of modern Germany and the rise of national socialism.

HIST 441 Germany in the Twentieth Century, 1914-1945 (3) Germany's aims and policies during world War I, its condition and policies in the inter-war period, the rise of national socialism, and Germany's part in World War II

HIST 442 The Soviet Union (3) A history of Soviet Russia and the Soviet Union from 1917 to the present Stress on the relationship between Marxist theory and practice, and the development of peculiarly socialist institutions and practices

HIST 443 Modern Balkan History (3) A political, socio-economic, and cultural history of Yugoslav, Bulgaria, Romania, Greece, and Albania from the breakdown of Ottoman domination to the present Emphasis is on movements for national liberation during the nineteenth century and on approaches to modernization in the twentieth century

HIST 444 Nineteenth Century European Diplomatic History (3) The development and execution of European diplomacy from the Congress of Vienna to the outbreak of World War I, concentrating on Central and Western Europe

HIST 445 Twentieth Century European Diplomatic History (3) The development and execution of European diplomacy from the outbreak of World War I to the conclusion of World War II, concentrating on Central and Western Europe

HIST 446 European Economic History to 1750 (3) Economic development of Europe from the manorial economy of medieval feudalism through the emergence of capitalist institutions and overseas empires to the advent of the industrial revolution

HIST 447 European Economic History Since 1750 (3) The mainsprings of the Industrial Revolution first in 18th century England and then across the rest of Europe during the 19th and 20th centuries Emphasis on the English, French German Austro-Hungarian and Russian experiences with private capitalism and public policy including fascism and communism Social consequences of industrial development such as urbanization and the rise of labor movements

HIST 450 Economic History of the United States to 1865 (3) The development of the American economy from Columbus through the Civil War

HIST 451 Economic History of the United States After 1865 (3) The development of the American economy from the Civil War to the present

HIST 452 Diplomatic History of the United States to 1914 (3) American foreign relations from the American Revolution to the beginning of World War I International developments and domestic influences that contribute to American expansion in world affairs. Analyses of significant individuals active in American diplomacy and foreign policy

HIST 453 Diplomatic History of the United States from 1914 (3) American foreign relations in the twentieth century World War I, the Great Depression, World War II, the Cold War the Korean War and Vietnam A continuation of HIST 452

HIST 454 Constitutional History of the United States: From Colonial Origins to 1860 (3) The interaction of government, law and politics in the constitutional system The nature and purpose of constitutions and constitutionalism, the relationship between the constitution and social forces and influences, the way in which constitutional principles, rules, ideas, and institutions affect events and are in turn affected by events The origins of American politics and constitutionalism through the constitutional convention of 1787 Major constitutional problems such as the origins of judicial review democratization of government, slavery in the territories and political system as a whole

HIST 455 Constitutional History of the United States: Since 1860 (3) American public law and government, with emphasis on the interaction of government, law, and politics Emphasis on the political-constitutional system as a whole, rather than simply the development of constitutional law by the Supreme Court Major crises in American government and politics such as Civil War, reconstruction the 1890's, the new deal era, the civil disorders of the 1960's.

HIST 456 History of Ideas in America to 1865 (3) The ideas, conflicts, myths, and realities that shaped American character and society from the first settlements to the Civil War

HIST 457 History of Ideas in America Since 1865 (3) A continuation of HIST 456

HIST 458 Selected Topics in Women's History (3) Selected topics on women in American society including such areas as women and the law, women and politics, the 'feminine mystique' and the 'new feminism. May be repeated to a maximum of six semester hours Students previously receiving credit in HIST 408 may not enroll

HIST 459 Society in America: Historical Topics (3) A consideration of selected aspects of American society from colonial times to the present Special emphasis on regionalism, immigration, nativism, minorities, urbanization, and social responses to technological changes May be repeated to a maximum of six credits if topics are different

HIST 460 History of Labor in the United States (3) The American working class in terms of its composition, its myths and utopias, its social conditions, and its impact on American institutions

HIST 461 Blacks in American Life: 1865 to Present (3) The role of the Black in America since slavery, with emphasis on twentieth century developments the migration from farm to city, the growth of the civil rights movement, the race question as a national problem

HIST 462 The Civil War (3) A detailed study of historical interpretations the forces, situations and events that caused the war the war and its impact

HIST 463 History of the Old South (3) The golden age of the Chesapeake, the institution of slavery, the frontier south, the antebellum plantation society, the development of regional identity and the experiment in independence

HIST 464 History of the New South (3) The experience of defeat, the restructuring of southern society, the impact of industrialization and the modern racial adjustment

HIST 465 History of the American Frontier: the Trans-Allegheny West (3) Major historical interpretation of the significance to the period of the Trans-Allegheny West Assesses the impact of the frontier experience on American history Equal attention is given to political economic social and cultural problems associated with the development of the west Indian culture, treatment of the Indians, and Indian-White relations are integrated into the course through readings and lectures

HIST 466 History of the American Frontier: the Trans-Mississippi West (3) Exploration settlement and development of the Trans-Mississippi West Assesses the impact of the frontier experience on American history Equal attention is given to political, economic social and cultural problems associated with the development of the west Indian culture, treatment of the Indians, and Indian-White relations are integrated into the course through readings and lectures

HIST 467 History of Maryland (3) Political, social and economic history of Maryland from seventeenth century to the present

HIST 470 Diplomatic History of Latin America (3) A survey of the political, economic and cultural relations of the Latin American nations with emphasis on their relations with the United States and the development of the inter-American system.

HIST 471 History of Brazil (3) The history of Brazil with emphasis on the national period

HIST 472 History of the Argentine Republic (3) Concentration upon the recent history of Argentina with emphasis upon the social and economic development of a third world nation

HIST 473 History of the Spanish Caribbean (3)

HIST 474 History of Mexico and Central America I (3) History of Mexico and Central America, beginning with the Pre-Spanish Indian cultures and continuing through European contact, conquest, and colonial dominance down to the beginning of the Mexican War for Independence in 1810

HIST 475 History of Mexico and Central America II (3) A continuation of HIST 474 with emphasis of the political development of the Mexican nation.

HIST 476 History of Canada (3) A history of Canada, with special emphasis on the nineteenth century and upon Canadian relations with Great Britain and the United States.

HIST 477 American Foreign Relations in the Age of Roosevelt (3) An intensive study of foreign relations from 1932 to 1945 Diplomacy in the Great Depression, rise and fall of American isolationism; 'aid-short-of-war' in opposition to Axis aggression, FDR's conduct of foreign affairs during World War II, his guidance toward an expanded leadership role for the United States after the war, and beginnings of the Cold War with the Soviet Union

HIST 480 History of Traditional China (3) China from earliest times to 1644 A D Emphasis on the development of traditional Chinese culture, society, and government

HIST 481 A History of Modern China (3) Modern China from 1644 to the People's Republic of China Emphasis on the coming of the west to China and the various stages of the Chinese reaction.

HIST 482 History of Japan to 1800 (3) Traditional Japanese civilization from the age of Shinto mythology and introduction of continental learning down to the rule of military families, the transition to a money economy, and the creation of a townsmen's culture A survey of political, economic, religious, and cultural history

HIST 483 History of Japan Since 1800 (3) Japan's renewed contact with the western world and emergence as a modern state, industrial society, and world power, 1800-1931, and Japan's road to war, occupation, and recovery, 1931 to the present

HIST 485 History of Chinese Communism (3) An analysis of the various factors in modern Chinese history that led to the victory of the Chinese communist party in 1949 and of the subsequent course of events of the People's Republic of China, from ca 1919 to the present

HIST 487 History of Soviet Foreign Relations, 1917 to Present (3) A history of Soviet foreign relations both conventional diplomacy and the spread of proletarian international from the October Revolution to the present

HIST 491 History of the Ottoman Empire (3) Survey of the Ottoman Turkish Empire from 1300 A D To its collapse during World War I Emphasis on the empire's social and political institutions and its expansion into Europe, the Arab East and North Africa

HIST 492 The Contemporary Middle East (3) This course covers the break-up of the Ottoman empire and the emergence of contemporary states of the area

HIST 495 Twentieth Century Algeria (3) A brief survey of the history of Algeria and an indepth study of twentieth century events leading up to and including the War of Liberation and Algerian independence Reading knowledge of French desirable

HIST 496 Africa Since Independence (3) Analysis of socio-political and econo-political changes in Africa since approximately 1960; development of class structures, the role of the military, personal rule and the patrimonial state, decline of party politics and participatory politics Discussion of changes in economic policies, policies with respect to rural communities, and their relationship to the state and decision-making

HIST 497 Islam in Africa (3) The introduction of Muslims and Islam into Africa from approximately the eighth to nineteenth century Impact of Islam on a regional-cultural basis, as well as Islam in state development A discussion of political theory in Islamic Africa, and the impact of Islam on social structures, e g , domestic African slavery Role of Islam in resistance movements against imperialism and colonization, as well as the place of Islam in the independence movements of the 1950's and 1960's

HIST 499 Independent Study (1-3) Consent of department Repeatable to a maximum of six credits

HLTH — Health

HLTH 105 Science and Theory of Health (2) The scientific and philosophical bases for various theories of health, including health, wellness, individual control and limitations of health status, and holistic health.

HLTH 106 Drug Use and Abuse (3) An interdisciplinary analysis of contemporary drug issues and problems The course will examine physiological, psychological, social, philosophical, historical, legal and health aspects of drug use and abuse Special attention will be focused on those general motivations for drug use that attend life on the college campus

HLTH 110 Orientation to Health Education (1) This course explores the field of health education in both the school and the community from the point of view of the health educator Professional preparation and career opportunities are considered

HLTH 130 Introduction to Health (3) Development of understanding and appreciation of the historic and significant purpose and place of each of the specialized health areas in general education A study of the educational and personal requirements and opportunities of a career in each professional health area

HLTH 140 Personal and Community Health (3) Meaning and significance of physical, mental and social health as related to the individual and to society; important phases of national health problems, constructive methods of promoting health of the individual and the community

HLTH 150 First Aid and Emergency Medical Services (2) Lecture, demonstration and training in emergency care, including cardiopulmonary resuscitation, hemorrhage control, shock, poisons and bone injury treatment and childbirth American Red Cross and Heart Association of Maryland Certification awarded

HLTH 230 Introduction to Health Behavior (3) Psychological, social psychological, and sociological approaches to the following health areas development of health attitudes and behavior, patient-provider interaction and the organization of health care

HLTH 260 Instructor's Course in First Aid (2) Prerequisite HLTH 150 or equivalent Advanced consideration of first aid techniques, orientation to methods, techniques and teaching aids, practical classroom instruction required Red Cross instructor's certification awarded

HLTH 270 Safety Education (3) Safety in the home, school and community Safety education programs in the public schools

HLTH 280 The Driver and His Characteristics (3) Driver behavior problem in its relation to many of the psychophysical factors and forces in the traffic environment that impinge upon the person behind the wheel Valid driver's license required.

HLTH 285 Controlling Stress and Tension (3) Health problems related to stress and tension Analysis of causative psycho-social stressors and intervening physiological mechanisms Emphasis on prevention and control of stress through techniques such as biofeedback, meditation and neuromuscular relaxation

HLTH 305 Driver Education and Traffic Safety I (3) Prerequisite HLTH 280. This course is a study of the place of the automobile in modern life and deals with the fundamentals, principles, practices, and content of high school driver education and traffic safety Laboratory experience consists of observation and experience in teaching beginners to drive in dual control cars and simulators Course includes eight weeks of practice teaching

HLTH 310 Introduction to the School Health Program (2) Prerequisites HLTH 105 or HLTH 140 This course deals with the aspects of school health health environment health services, and health education The relationships of the school health program and the general education program are emphasized The roles of teachers, administrators health specialists, and others in related fields are discussed

HLTH 340 Curriculum, Instruction and Observation (3) Prerequisite HLTH 140, and HLTH 420 A course designed to provide directed observation and discussion, coordinating these experiences with those from previous methods courses in the development of curricula for health and physical education The course is planned to prepare for student teaching which follows in the same semester The observations will be made of health programs in junior and senior high schools

HLTH 345 Driver Education and Traffic Safety II (3) Prerequisite HLTH 305 or equivalent Comprehensive programming for driver education, teaching to meet driving emergencies and winter conditions, resources and agencies, the teacher and driver education, consumer education, insurance and liability

HLTH 365 Organization, Administration and Supervision of School Safety Education (3) Prerequisite, HLTH 270 or equivalent Designed for teachers, school administrators, college instructors, and others responsible for directing or supervising safety programs in the schools Deals with the problems, policies, practices, and procedures involved in the organization, administration and the supervision of a comprehensive accident prevention and safety education program for the schools Considers integration factors of the school safety programs with special emphasis on traffic programs

HLTH 370 Behavioral Factors in Accident Causation and Prevention (3) Prerequisite HLTH 270 or permission of department The role of behavioral factors, as opposed to environmental or machine-agent influences in determining and reducing injurious mishaps Special emphasis on variables which affect protective motivation

HLTH 371 Communicating Safety and Health (3) The communication and evaluation of safety and health information. Emphasis on various types of communications and recipient factors which contribute to their success or failure

HLTH 375 Problems in Driver and Traffic Safety Education (3) Prerequisite HLTH 345 or equivalent An advanced course which gives consideration to the individual problems encountered in teaching driver and safety education The psychology of teaching and learning are emphasized Consideration is given to implications of emotion and attitude factors in driver and traffic education The course includes an examination of existing courses of study, research, supervisory and evaluation practices

HLTH 377 Human Sexuality (3) The biological and developmental aspects of human sexuality, the psychological and emotional aspects of sexual behavior, sexual identity, the historical, cultural social, linguistic, legal and moral forces affecting sexual issues, the importance of communication, disclosure and intimacy in interpersonal relationships, and research trends in the area of human sexuality

HLTH 390 Organization and Administration of School Health Programs (3) Prerequisite HLTH 105 The three major aspects of the school health program are considered Problems connected with health services, health instruction, and the health aspects of the school environment are discussed The responsibilities of school personnel are delineated with emphasis on the role of the administrator

HLTH 420 Methods and Materials in Health Education (3) Prerequisites HLTH 105 or HLTH 140 The purpose of this course is to present the interrelationships of curriculum planning, methodology and the selection and use of teaching aids and materials Special problems associated with health teaching are discussed Students become familiar with a variety of resources as well as planning for and presenting demonstration lessons

HLTH 430 Health Education in the Workplace (3) A survey of the role of health education in work settings Examination of occupational stress, the health effects of shift work, women's health in the workplace health education approaches to informing workers and management and health promotion programs in the workplace

HLTH 440 Health Education and Behavioral Approaches to Nutrition (3) Prerequisite NUTR 100 or equivalent Health education and health behavior methods techniques and approaches applied to nutrition behavior ways of changing nutrition and dietary behavior relationship between nutrition and health nutrition education psychology of eating and behavioral and cultural factors in diet

HLTH 450 Health of Children and Youth (3) A study of the health of 5 to 18 year olds Physical mental social, and emotional health Psychosexual development, diet exercise recreation and the roles of parents and teachers

HLTH 455 Physical Fitness of the Individual (3) Study of major physical fitness problems confronting the adult in modern society Consideration given to the scientific appraisal development and maintenance of fitness at all age levels Obesity weight reduction chronic fatigue posture and special exercise programs are explored Open to persons outside the physical education and health fields

HLTH 456 Health of the Aging and Aged (3) Psychological, physiological and socio-economic aspects of aging, nutrition, sexuality death dying, and bereavement self-actualization and creativity health needs and crises of the aged

HLTH 460 Problems in School Health Education in Elementary and Secondary Schools (2-6) This is a workshop type course designed particularly for inservice teachers to acquaint them with the best methods of providing good health services healthful environment and health instruction

HLTH 465 Safety Program Evaluation (3) Prerequisite HLTH 370 or permission of department Methods and techniques used to evaluate safety programs with special reference to managerial decisionmaking needs assessment and hazard recognition, evaluation and control

HLTH 470 The Health Program in the Elementary School (3) Prerequisites HLTH 105 or HLTH 140, and HLTH 310. Designed for the elementary school classroom teacher Analyzes biological and sociological factors which determine the health status and needs of the individual elementary school child Various aspects of the school program are evaluated for their role in health education The total school health program is surveyed from the standpoint of organization and administration, and health appraisal Emphasis is placed upon modern methods and current materials in health instruction (The state department of education accepts this course for biological science credit)

HLTH 471 Women's Health (3) The women's health movement from the perspective of consumerism and feminism The physician-patient relationship in the gynecological and other medical settings The gynecological exam, gynecological problems, contraception, abortion, pregnancy, breast and cervical cancer and surgical procedures Psychological aspects of gynecological concerns

HLTH 476 Death Education (3) Examination of the genesis and development of present day death attitudes and behavior by use of a multidisciplinary life cycle approach

HLTH 480 Measurement in Health (3) Two hours of lecture and two hours of laboratory per week The application of the principles and techniques of educational measurement to the teaching of health and physical education; study of functions and techniques of measurements in the evaluation of student progress toward the objectives of health and physical education and in the evaluation of the effectiveness of teaching

HLTH 487 Adult Health and Developmental Program (3) Training and experience in a clinically oriented development program for the aged

HLTH 489 Field Laboratory Projects and Workshop (1-6) Note the maximum total number of credits that may be earned toward any degree in physical education, recreation, or health education under PHED RECR or HLTH 489 is six A course designed to meet the needs of persons in the field with respect to workshop and research projects in special areas of knowledge not covered by regularly structured courses

HLTH 490 Theories of Children's Love and Peace Behavior (3) The development of love and peace behaviors as health correlates in infra human and human species from infancy through childhood with special emphasis upon the role of physical education recreation and health The examination of existing models in the areas of family school and clinical settings

HLTH 498 Special Topics in Health (3) Prerequisite permission of department Repeatable to 3 credits if content differs Topics of special interest in areas not covered by regularly scheduled courses

HONR — Honors

HONR 118 Freshman Honors Colloquium: Cultural and Historical (3) A colloquium on a variety of topics each of which will include the study of a culture or cultures from a comparative or historical perspective The course may be repeated for credit with the permission of the Director of the General Honors Program if the content of the course is substantially different Open to General Honors freshmen or sophomores and to other students by permission of the Director of General Honors

HONR 128 Freshman Honors Colloquium: Natural Sciences and Mathematics (3) A colloquium on a variety of topics in natural sciences or mathematics The course may be repeated for credit with the permission of the Director of the General Honors Program if the content of the course is substantially different Class discussion and active student participation will be stressed Open to General Honors freshmen or sophomores and to other students by permission of the Director of General Honors

HONR 138 Freshman Honors Colloquium: Literature and the Arts (3) A colloquium on a variety of topics each of which deals with the aesthetic from an analytical and evaluative viewpoint The course may be repeated for credit with the permission of the Director of the General Honors Program if the content of the course is substantially different Class discussion and active student participation will be stressed Open to General Honors freshmen or sophomores and to other students by permission of the Director of General Honors

HONR 148 Freshman Honors Colloquium: Social and Behavioral Sciences (3) A colloquium on a variety of topics in the social and behavioral sciences The course may be repeated for credit with the permission of the Director of the General Honors Program, if the content of the course is substantially different Class discussion and active student participation will be stressed Open to General Honors freshmen or sophomores and to other students by permission of the Director of General Honors

HONR 158 Freshman Honors Colloquium: Interdisciplinary (3) A colloquium on a variety of interdisciplinary topics of broad general interest The course may be repeated for credit with the permission of the Director of the General Honors Program, if the content of the course is substantially different Class discussion and active student participation will be stressed Open to General Honors freshmen or sophomores and to other students by permission of the Director of General Honors

HONR 318 Honors Seminar: Cultural and Historical (1-3) A series of seminars, often interdisciplinary in character, and sometimes team taught The subjects will vary from semester to semester The content will always be such that it includes the study of a culture or cultures from a comparative or historical perspective The seminar may be repeated for credit, with the permission of the Director of the General Honors program, if the content of the course is substantially different Open to general and departmental honors students and to others with the permission of the instructor and the Director of General Honors

HONR 328 Honors Seminar: Natural Sciences and Mathematics (1-3) A series of seminars in the natural sciences and mathematics, often interdisciplinary in character and sometimes team taught The subjects will vary from semester to semester The seminar may be repeated for credit, with the permission of the Director of the General Honors program, if the content of the course is substantially different Open to general and departmental honors students and to others with the permission of the instructor and the Director of General Honors.

HONR 338 Honors Seminar: Literature and the Arts (1-3) A series of seminars in literature and the arts, often interdisciplinary and sometimes team taught The subjects will vary from semester to semester The content will always be such that it includes a focus on the aesthetic from an analytic and evaluative viewpoint The seminar may be repeated for credit, with the permission of the Director of the General Honors program, if the content of the course is substantially different Open to general and departmental honors students and to others with the permission of the instructor and the Director of General Honors

HONR 348 Honors Seminar: Social and Behavioral Sciences (1-3) A series of seminars in the social and behavioral sciences, often interdisciplinary and sometimes team taught The subjects will vary from semester to semester The seminar may be repeated for credit, with the permission of the Director of the General Honors program, if the content of the course is substantially different Open to general and departmental honors students and to others with the permission of the instructor and the Director of General Honors

HONR 358 Honors Seminar: Interdisciplinary (1-3) A series of seminars on broad interdisciplinary topics of general interest The subjects will vary from semester to semester The seminar may be repeated for credit, with the permission of the Director of the General Honors program, if the content of the course is substantially different Open to general and departmental honors students and to others with the permission of the instructor and the Director of General Honors

HONR 368 Honors Seminar: Development of Knowledge (1-3) A series of seminars, often interdisciplinary in character and sometimes team-taught The creation, discovery, exploration, testing and evaluation of knowledge in one or more disciplines The seminar may be repeated for credit, with the permission of the Director of the General Honors Program, if the content of the course is substantially different Open to General and Departmental Honors students and to others with permission of the Director of General Honors

HONR 370 Honors Thesis or Project (3-6) The preparation and execution, under the direction of an individual faculty member, of a written thesis or a project of some other kind, such as a piece of creative work or a performance The thesis or project must be of honors quality and must be outside the student's major Open only to students in the General Honors program

HONR 378 Honors Seminar: Analysis of Human Problems (1-3) A series of seminars, often interdisciplinary in character and sometimes team taught The application of knowledge from one or more disciplines to the study of important human problems The seminar may be repeated for credit, with the permission of the Director of the General Honors Program, if the content of the course is substantially different Open to General Honors students and to others with permission of the Director of General Honors

HONR 379 Honors Independent Study (1-6) Honors independent study involves reading or research, directed by individual faculty, especially in areas outside of student's major HONR 379 or 360 but not both, may be used once to fulfill the general honors seminar requirement Graded pass-fail May be repeated to a maximum of twelve hours Open only to general honors students

HORT — Horticulture

HORT 100 Introduction to Horticulture (3) An introduction to the art and science of horticulture for the non-major The technical and cultural bases for the selection, production, and maintenance of horticultural plants

HORT 160 Introduction to Landscape Architecture (3) Theory and general principles of landscape architecture with their application to public and private areas

HORT 171 Elements of Forestry (3) Two lectures per week Prerequisite BOTN 101 A general survey of the field of forestry, including timber values, conservation, protection, silviculture, utilization, mensuration engineering, recreation and lumbering Principles and practices of woodland management Four all-day Saturday field trips are required

HORT 201 Environmental Factors and Horticultural Crop Production (4) Three lectures and one three-hour laboratory per week Prerequisite BOTN 101 The first of a two semester sequence The influence and interaction of light, mineral nutrition, water, temperature and gas exchange on growth, physiological responses, productivity and quality of horticultural crops

HORT 202 Management of Horticultural Crops (4) Three lectures and one three-hour laboratory per week Prerequisite HORT 201 A study of the principles and practices used in the production of horticultural crops Management of soils and soilless media, vegetative and reproductive growth and development, pests, harvest, post-harvest environment and marketing will be presented for model commodities.

HORT 260 Graphic Communications (2) Two two-hour studio periods per week Graphic communication for landscape design presentation, supplemented by basic problems in landscape design

HORT 271 Plant Propagation (3) Two lectures and one laboratory period a week Prerequisite BOTN 101 A study of the principles and practices in the propagation of plants

HORT 274 Genetics of Cultivated Plants (3) Three lectures per week Prerequisite: BOTN 101 Principles of plant genetics in relation to plant breeding Some of the topics presented are meiosis, simple Mendelian genetics, gene interaction, linkage and crossing over, cytoplasmic and quantitative inheritance, mutations, and the role of DNA

HORT 361 Principles of Landscape Design (3) One lecture and two studio periods per week Prerequisites HORT 260 and APDS 101 A consideration of design criteria and procedure as applied to public and private landscape

HORT 398 Seminar (1) Oral presentation of the results of investigational work by reviewing recent scientific literature in the various phases of horticulture

HORT 399 Special Problems (2) Credit arranged according to work done For major students in horticulture or botany Four credits maximum per student

HORT 411 Fruit Crop Production (3) Prerequisite HORT 202 Pre or co-requisite BOTN 441 A critical analysis of research work and application of the principles of plant physiology, chemistry, and botany to practical problems in the commercial production of fruit crops

HORT 422 Vegetable Crop Production (3) Prerequisite HORT 202 Pre or co-requisite BOTN 441 A critical analysis of research work and application of the principles of plant physiology, chemistry, and botany to practical problems in the commercial production of vegetable crops.

HORT 432 Greenhouse Crop Production (3) Prerequisite HORT 202 Pre or co-requisite BOTN 441 The commercial production and marketing of ornamental plant crops under greenhouse, plastic houses and out-of-door conditions

HORT 452 Principles of Landscape Establishment and Maintenance (3) Two lectures and one laboratory period per week Prerequisite HORT 453 or HORT 454 A study of the establishment and maintenance of woody plants stressing the physiological determinants of recommended practices Topics covered will include site preparation, transplanting, staking, mulching, pruning, fertilizing and related topics

HORT 453 Woody Plant Materials I (3) Prerequisite BOTN 212 A field and laboratory study of trees, shrubs, and vines used in ornamental plantings Major emphasis is placed on native deciduous plant materials

HORT 454 Woody Plant Materials II (3) Prerequisite BOTN 212 A field and laboratory study of trees, shrubs, and vines used in ornamental plantings Major emphasis is placed on introduced and evergreen plant materials

HORT 456 Nursery Crop Production (3) Two lectures a week and four all-day compulsory Saturday laboratories Pre or co-requisite HORT 201 202, 271 and 453 or 454 The methods used for producing ornamental plants and an introduction to the different types of commercial nurseries

HORT 457 Horticultural Education (1) Instructional processes and practices used in the teaching of horticultural crop management

HORT 462 Urban Landscape Design (4) Three hour lecture and one two-hour studio per week Prerequisite: HORT 361, and [HORT 453 or HORT 454] Trends in the field of urban landscape design Explore the two distinct areas of planting design and urban design and focus on the efforts to integrate them within the spectrum of landscape architectural studies

HORT 464 Principles of Landscape Construction (3) One lecture and two two-hour studio periods per week Prerequisite HORT 361 Landscape development principles and construction practices as applied to grading, drainage, layout, and vehicular and pedestrian circulation

HORT 465 Landscape Structures and Materials (3) One lecture and two two-hour studio periods per week Prerequisite: HORT 464 Use and design of structures in the landscape

HORT 466 Advanced Landscape Design (3) One lecture and two studio periods per week Prerequisites HORT 462, HORT 465 and HORT 452 A synthesis of design, landscape development, construction and planting principles and procedures as applied to the comprehensive design of public and private landscapes

HORT 467 Landscape Contracting and Professional Practice (3) Prerequisite HORT 452. Introduction to and comparative study of the business concerns of landscape contracting companies and landscape architectural firms The legal, financial, marketing, and personnel management practices in both business realms

HORT 472 Advanced Plant Propagation (2) Prerequisite: HORT 271 A study of the anatomy, morphology and physiology of the seed and plant as related to macro and micro forms of propagation A review of research in propagation

HORT 474 Physiology of Maturation and Storage of Horticultural Crops (3) Two lectures and one laboratory per week Prerequisite BOTN 441 The physiological and biochemical changes occuring during storage of horticultural commodities Application of scientific principles to handling and storage of fresh produce

HORT 489 Special Topics in Horticulture (1-3) Credit according to time scheduled and organization of course A lecture and/or laboratory series organized to study in depth a selected phase of horticulture not covered by existing courses

HSAD — Housing and Design

HSAD 002 Portfolio Preparation Workshop (3) Non-credit, but equivalent to three credits for fee calculation purposes only Prerequisite Pre-design status Guidance and assistance for students whose design portfolio did not pass the review required under selective admission to the majors of Interior Design or Advertising Design, or for students who wish to better prepare a portfolio prior to the review Passing this course is not equivalent to a satisfactory completion of the portfolio review Offered in Summer only on non-standard schedule

HSAD 210 Presentation Techniques I (3) Six hours of laboratory per week Prerequisite APDS 103 or equivalent For interior design majors only Basic techniques for making two-dimensional presentations of existing space utilizing technical skills to convey design solutions

HSAD 240 Design and Furnishings in the Home (3) Three lectures a week Prerequisites APDS 101 or 104 Designed to meet need for basic information and competency in choice and arrangement of home furnishings. For nonmajors only

HSAD 246 Materials of Interior Design (3) Prerequisites APDS 103 or equivalent Open only to interior design majors Investigation of materials and construction characteristics of interior architecture and furnishings Emphasis on use, limitations, sources Directions in current research

HSAD 251 Housing Issues and Prospects (3) Social and economic issues associated with the production, consumption and regulation of housing Perceptions of the housing unit, factors affecting the cost and financing of housing, and the role of federal and local government in the distribution of the housing resource

HSAD 340 Period Homes and Their Furnishings (3) Prerequisites APDS 101, HSAD 246, or equivalent A study of authentic interiors and furnishings Exploration of style influences apparent in contemporarily produced items

HSAD 341 Contemporary Developments in Architecture, Interiors, Furnishings (3) Prerequisite HSAD 246 and consent of instructor Style origins and development of twentieth century architecture as living space Architects, designers, trends, philosophy of relationship of interior space to furnishings

HSAD 342 Space Development (3) Prerequisites HSAD 210 and HSAD 246 Open only to interior design majors Observation and analysis of spaces and examination of their characteristics Concepts of space quality, cultural context, symbolic content, person-environment relations, and functional aspects Environmental representation through drawings, scale models, and photography

HSAD 343 Interior Design I (3) Two three-hour lecture/discussion/studio periods Prerequisite HSAD 342 Development of the design process, including problem definition, performance specifications, program development, schematic alternatives, evaluation, design development, and construction documents Application of the process to the design of residential spaces with emphasis on concepts of community and privacy

HSAD 344 Interior Design II (3) One lecture-discussion, two studio periods Prerequisite HSAD 343 Continuation of HSAD 343 with emphasis on commercial and contract assignments

HSAD 345 Professional Aspects of Interior Design (3) Prerequisite HSAD 343 Examination and discussion of professional career opportunities, ethics, and practices Contact negotiation and contract documents Professional organizations Portfolio evaluation

HSAD 362 Ideas in Design (3) Prerequisite: completion of distributive studies areas A and C. Key concepts in design, including style, type, rule, system, meaning and model Examination of historical and contemporary periods

HSAD 440 Interior Design III (4) Eight hours studio periods Prerequisite HSAD 344 Preparation of complete presentation work specifications, floor plans, purchase orders, renderings, etc Portfolio preparation

HSAD 441 Interior Design IV (4) Eight hours studio periods Prerequisite HSAD 440 Preparation of complete presentation work specifications, floor plans, purchase orders, renderings, etc Portfolio preparation

HSAD 442 Barrier-free Interiors I (3) Prerequisite APDS 101A or equivalent and consent of instructor An introduction to determinants of design decisions in relation to the handicapped, aging and disabled physical limitations and design support systems

HSAD 443 Barrier-free Interiors II (3) Prerequisites HSAD 343, HSAD 442 Three studio periods Experience in solving problems related to interior space, both individual and congregate, and its use by the handicapped, aging and disabled

HSAD 451 Gaming Simulation in Design I (3) Prerequisites Two upper-division level courses in HSAD, FMCD, ARCH, URBS, GVPT or permission of instructor Simulation games as a means to model social interaction Applications in the fields of urban, architectural, interior and graphic design, planning, housing, and community development Mathematical gaming theory as it relates to simulation games

HSAD 452 Gaming Simulation in Design II (3) Prerequisite HSAD 451 The design and testing of student developed simulation games in the fields of urban, architectural, interior and graphic design, planning, housing, and community development

HSAD 458 Readings in Housing (3) Prerequisite SOCY 100 and consent of instructor Readings in depth under the guidance of a faculty member on one or more facets of housing, in support of individual interests in urban renewal, public housing, etc Repeatable to a maximum of six credits

HSAD 460 Housing Costs and Financing (3) Prerequisites MATH 110 and ECON 205 or equivalent Effects of housing costs and financing on the ability of households to obtain satisfactory housing Influence of the public and private groups on the cost of housing and availability of financing Basic quantitative techniques of housing cost analysis

HSAD 462 Seminar on Ideas in Design (3) Pre- or corequisite HSAD 362 or consent of instructor Detailed examination and discussion of concepts presented in HSAD 362

HSAD 488 Selected Topics in Housing and Interior Design (1-6) Offered on demand May be repeated to a maximum of six hours

HSAD 499 Individual Study in Housing and/or Interior Design (3-4) Guidance for the advanced student capable of independent subject matter investigation or creative work Problem chosen with consent of instructor

ITAL — Italian

ITAL 101 Elementary Italian I (4) Introduction to basic grammar and vocabulary, written and oral work Credit will not be given for both ITAL 101 and ITAL 121

ITAL 102 Elementary Italian II (4) Prerequisite: ITAL 101 Completion of study of basic grammar, written and oral work, with an increasing emphasis on spoken Italian

ITAL 121 Accelerated Italian I (3) An intensive beginning course in Italian language skills guided practice in reading and writing, understanding the spoken language and conversation, to enable the student to move more quickly to advanced courses Restricted to students already having a good background in at least one other foreign language (successful completion of level 4 in high school, OR 104 or equivalent at the university level or through linguistic competence acquired by residence abroad, or by demonstration of equivalent proficiency) With 122, may be used to satisfy language requirements

ITAL 122 Accelerated Italian II (3) Prerequisite ITAL 121 An intensive beginning course in Italian language skills guided practice in reading and writing, understanding the spoken language and conversation, to enable the student to move more quickly to advanced courses May be used to satisfy language requirements Credit will not be given for both ITAL 203 and ITAL 122

ITAL 203 Intermediate Italian (4) Prerequisite ITAL 102 Review of Italian grammar, extensive reading, discussion, and composition Completion of this course fulfills the arts and humanities language requirement Credit will not be given for both ITAL 203 and ITAL 122

ITAL 204 Review Grammar and Composition (3) Perequisite ITAL 203 or 122, or course chairman's consent An intensive review of major aspects of contemporary grammatical usage; training in comprehension, an introduction to guided composition

ITAL 211 Intermediate Conversation (3) Prerequisite ITAL 203 or consent of course chairman Practice in spoken Italian with emphasis on contemporary Italian culture Not open to native speakers

ITAL 251 Introduction to Italian Literature (3) Prerequisite: ITAL 203 Required of all students who continue in advanced courses of the department with the exception of superior students who are permitted to bypass an introduction to Italian literature Conducted in Italian Reading of literary texts, discussion and brief essays

ITAL 279 Readings in Italian Literature in Translation (3) Topic to be determined each semester All readings, discussions and examinations in English No prerequisites Repeatable for a maximum of 6 credits

ITAL 301 Composition and Style (3) Prerequisite ITAL 204 or permission of department Techniques of composition, grammatical analysis, elements of style, free composition

ITAL 311 Italian Conversation: Current Events (3) Prerequisites ITAL 211 or permission of the department Oral expression, development of idiomatic forms and vocabulary to level of the Italian press Not open to students with native fluency

ITAL 351 Italian Literature From Dante to the Renaissance (3) Prerequisites ITAL 204 or 251 or permission of instructor Basic survey of history of Italian literature

ITAL 352 Italian Literature From the Renaissance to the Present (3) Prerequisites ITAL 204 or 251 or permission of instructor Basic survey of history of Italian literature

ITAL 370 Italian Civilization (3) Political, social, intellectual, literary and artistic forces shaping contemporary Italy, from the late Middle Ages to the present Taught in English

ITAL 376 The Italian Opera Libretto (3) A history and analysis of Italian opera librettos from Monteverdi through Mozart to Verdi and Puccini In English

ITAL 399 Directed Study in Italian (1-3) Prerequisite permission of department Intended for undergraduates who wish to work on an individual basis with a professor of their choice Repeatable for a maximum of three credits

ITAL 410 The Italian Renaissance (3) A study of major trends of thought in Renaissance literature philosophy, art and science

ITAL 411 Dante (3) Dante's thought as expressed in his major writings "The Vita Nuova," "De Monarchia" and "The Divine Comedy." In English

ITAL 475 Italian Cinema: A Cultural Approach (3) The culture of Italy through the medium of film from the silent days up to the present In English

ITAL 498 Special Topics in Italian Literature (3) Repeatable for a maximum of six credits

ITAL 499 Special Topics in Italian Studies (3) An aspect of Italian studies, the specific topic to be announced each time the course is offered Repeatable for a maximum of 6 credits

IVSP — Individual Studies Program

IVSP 318 Individual Studies (1-15) Prior permission of the administrative dean for undergraduate studies required This course may be used by students in the Individual Studies Program to establish credit in approved informal educational experiences such as independent studies special problems, or work-study experience

IVSP 319 Tutorial Report (1) A written analysis of progress toward completion of degree requirements Limited to students in the Individual Studies Program

IVSP 320 Bachelor's Report (3) Required of all students in the Individual Studies Program whose program includes 40% or more of informal educational experience (independent study, special problems, work internship, etc.) And is strongly recommended for all students in the program This paper is to be completed in the student's final semester and approved by the tutor and committee prior to certification for the degree

JAPN — Japanese

JAPN 101 Elementary Japanese I (6) Introduction to basic patterns of contemporary spoken Japanese and to the two phonetic syllabaries (Katakana and Hiragana)

JAPN 102 Elementary Japanese II (6) Prerequisite JAPN 101 or equivalent Continued introduction to the basic spoken and written patterns of contemporary Japanese

JAPN 201 Intermediate Spoken Japanese I (3) Prerequisite: JAPN 102 or equivalent Further study of grammar with emphasis on the spoken language

JAPN 202 Intermediate Written Japanese I (3) Prerequisite: JAPN 103 or equivalent Continued study of the written Japanese language through reading and composition

JAPN 203 Intermediate Spoken Japanese II (3) Prerequisite JAPN 201 or equivalent Continuation of JAPN 201

JAPN 204 Intermediate Written Japanese II (3) Prerequisite JAPN 202 or equivalent A continuation of JAPN 202

JAPN 217 Buddhism and Japanese Literature in Translation (3) A study of the religious and philosophical traditions central to the Japanese imaginative life and literature from ancient to modern times

JAPN 301 Advanced Japanese I (3) Prerequisite JAPN 202 or equivalent Readings in modern literary texts and other selected materials, and advanced conversation and oral comprehension

JAPN 302 Advanced Japanese II (3) Prerequisite JAPN 301 or equivalent Continued readings in varied modern texts and advanced conversation and oral comprehension

JAPN 303 Business Japanese I (3) Prerequisite JAPN 203 and 204 or equivalent Conversation, reading, and writing applicable to Japanese business transactions, social meetings and meetings with government organizations, with background material in English on professional business practices and social customs associated with business

JAPN 304 Business Japanese II (3) Prerequisite JAPN 303 or eqivalent Continuation of JAPN 303

JAPN 401 Readings in Modern Japanese I (3) Prerequisite JAPN 302 or equivalent Development of translation techniques, vocabulary, grammar, and reading speed Readings in history, social sciences, modern literature, and modern newspaper and periodical literature

JAPN 402 Readings in Modern Japanese II (3) Prerequisite JAPN 401 or equivalent Continuation of more advanced readings

JAPN 403 Readings in Classical Japanese (3) Prerequisite: JAPN 302 or equivalent Classical Japanese grammar and the varied styles of classical Japanese Readings in classical texts drawn from the Heian, Kamakura, Muromachi, and Edo periods

JAPN 414 Masterpieces of Classical Japanese Literature in Translation (3) Major classics, with focus on philosophical, historical and cultural backgrounds

JAPN 415 Modern Japanese Fiction in Translation (3) Major themes and literary developments in fiction from the late 19th century to the present Emphasis on the works of Kawabata, Tanizaki, Mishima, and Abe

JAPN 418 Japanese Literature in Translation (3) Representative works of Japanese literature in translation May be repeated for a total of nine credits when content differs

JAPN 421 History of the Japanese Language (3) Investigation of the origin of the Japanese language, its relationship with other languages, and its development In English

JAPN 422 Introductory Japanese Linguistics (3) An investigation of Japanese sound patterns and syntax through a comparison with English

JAPN 499 Directed Study in Japanese (1-3) Prerequisite permission of instructor Repeatable to a maximum of six credits

JOUR — Journalism

JOUR 001 Professional Orientation (1) Corequisite JOUR 201 or equivalent A survey of journalism professions, emphasizing appropriate academic and career development strategies This course does not carry academic credit towards any degree at the University, but successful completion is required for journalism majors

JOUR 100 Introduction to Mass Communication (3) Survey of the functions and effects of the mass media in the United States A consumer's introduction to newspapers, television, radio, film, sound recording, books, magazines, and new media technology Introduction to public relations, advertising, and news analysis

JOUR 201 Writing For Mass Media (3) Prerequisite 30 words per minute typing ability provisional or direct admission to journalism major Introduction to news, feature and publicity writing for the printed and electronic media development of news concepts, laboratory in news gathering tools and writing skills

JOUR 202 Editing For the Mass Media (3) Prerequisite grade of C or better in JOUR 201 Basic editing skills applicable to all mass media copy editing, graphic principles and processes, new media technology

JOUR 320 News Reporting (3) Two hours of lecture and two hours of laboratory per week Prerequisite: grade of C or better in JOUR 201 For JOUR majors only Principles and practices of news reporting with special emphasis on news gathering for all the media, covering news beats and other news sources, including researching a news story for accuracy, comprehensiveness and interpretation

JOUR 321 Advanced Reporting: Public Affairs (3) Prerequisites JOUR 320 and permission of department Advanced training in writing news for publication in specialized areas, particularly city, county, and federal news Students meet in seminar with news sources and leading news reporters and work in Washington, D C , Annapolis, and Baltimore covering news in depth for publication

JOUR 322 Advanced Reporting: Beats and Investigation (3) Prerequisite: JOUR 320. Advanced training and practice in writing, interviewing, beat reporting and investigative techniques Students meet in weekly seminars and work with metropolitan-area newspapers covering beats and writing stories for publication

JOUR 323 Newspaper Editing (3) Prerequisite grade of C or better in JOUR 202 Principles and practices of editing for publication Copy improvement, headline writing, news photos and cutlines, wire services, copy control and scheduling, page design and layout Introduction to computerized editing with video display terminals

JOUR 326 News Commentary and Critical Writing (3) Prerequisite JOUR 320 Journalistic interpretation and analysis, editorial and critical writing

JOUR 328 Specialized News Reporting (3) Prerequisite: JOUR 320 Repeatable to 6 credits if content differs Advanced training and practice in writing and reporting news of one specialized field of interest

JOUR 330 Public Relations Theory (3) Prerequisite grade of C or better in JOUR 201 The historical development and contemporary status of public relations in business, government associations and other organizations Application of communication theory and social science methods to the research, planning, communication and evaluation aspects of the public relations process

JOUR 331 Public Relations Techniques (3) Prerequisites JOUR 330, and grade of C or better in JOUR 202 The techniques of public relations including news releases, publications and printed materials, audio-visual techniques speeches and special events. Application of these techniques in laboratory and field projects

JOUR 332 Specialized Writing in Public Relations (3) Prerequisite grade of C or better in JOUR 201 Recommended JOUR 330 Public Relations writing for science, technology, health, medicine, corporate finance, educational policy, law and government in broadcast and technical media as well as newspapers and magazines and also including proposals, speeches and correspondence

JOUR 333 Organizational Communication in Public Relations (3) Prerequisites JOUR 330, and grade of C or better in JOUR 202. Theory and techniques for planning and producing organizational publications and internal communication programs Theories of organizational communication, principles of layout and design, non-print communication media, and methods of pretesting and evaluating communications programs

JOUR 334 Public Relations Programs (3) Prerequisite JOUR 330 Analysis of eight major programs typically carried out by public relations professionals employee relations, media relations, financial relations, member relations, governmental relations, community relations, fundraising and dealing with activist public

JOUR 340 Advertising Communication (3) Prerequisite grade of C or better in JOUR 201 Advertising as a mass communication profession and its role in the public information system of the United States Application of communication theory and research methods to the research, planning, communication, and evaluation aspects of advertising

JOUR 341 Advertising Techniques (3) Prerequisites JOUR 340, and grade of C or better in JOUR 202 Writing and production of print and broadcast advertisements application of these techniques in laboratory and field projects

JOUR 342 Advertising Media Planning (3) Prerequisite JOUR 340. Principles of planning, placing and evaluating advertising media in U S media markets Application of theory and methods to specific advertising situations

JOUR 350 Photojournalism (3) Prerequisite grade of C or better in JOUR 201 Not open to students who have completed JOUR 372 Fundamentals of camera operation, composition, developing and printing black and white still photographs for publication, history of photojournalism

JOUR 351 Advanced Photojournalism (3) Prerequisite JOUR 350 Analysis of the role of photography in mass communication, with emphasis on the photographic essay, and use of the 35 mm camera Students provide 35 mm equipment and supplies.

JOUR 352 Special Topics in Photojournalism (3) Prerequisites JOUR 351 and permission of department An analysis of the theory and application of advanced photographic processes to the communication of ideas, including direct audience communication, realistic and nonrealistic visual materials and media

JOUR 360 Broadcast News I (3) Prerequisite grade of C or better in JOUR 202 Writing for the broadcast media and the production of news stories

JOUR 361 Broadcast News II (3) Prerequisite JOUR 360 Writing and editing for the broadcast media Interpretive and documentary news stories

JOUR 365 Theory of Broadcast Journalism (3) Descriptive and critical analysis of broadcast news practices, evaluation of news judgments, decision-making and organizational aspects of the broadcast news industry

JOUR 371 Magazine Article and Feature Writing (3) Prerequisite: JOUR 320 Types of feature articles, particularly for the magazine market, analysis of the magazine medium and specialized audiences, practice in researching and writing the feature article, analysis of free-lance markets

JOUR 372 Magazine Photography and Illustration (3) Prerequisite grade of C or better in JOUR 201 Not open to students who have completed JOUR 350 Camera selection and operation, film selection and processing, print making; scaling and sizing of photographs; picture layout Students must provide 35 mm camera plus supplies

JOUR 373 Graphics (3) Prerequisite grade of C or better in JOUR 202. Intensive analysis of the components of publication content and design Type and typography, printing processes, illustration and production with emphasis on contemporary technology

JOUR 374 Magazine Production (3) Prerequisites JOUR 371, and JOUR 373 Publication of a laboratory magazine

JOUR 380 Science Writing for Magazines and Newspapers (3) Prerequisite JOUR 320 or permission of department Writing of scientific and technical material for the general audience

JOUR 396 Supervised Internship (3) Prerequisites grade of C or better in JOUR 202, and first course of journalism sequence related to techniques [LB]i e JOUR 320; or JOUR 331, or JOUR 341, or JOUR 350; or JOUR 360, or JOUR 380] and permission of department Internship experience with communication professionals in newspapers, news broadcasting, public relations, advertising, magazines, photojournalism and science communication Relation of academic training to professional experience

JOUR 397 Professional Seminar (3) Prerequisites grade of C or better in JOUR 201, and permission of department Projects and discussions relating professional work experience to study of journalism Limited to students who participated in an advanced summer internship after their junior year

JOUR 398 Independent Study (1-3) Repeatable to 3 credits Individual projects in journalism

JOUR 400 Law of Mass Communication (3) Legal rights and constraints of mass media libel, privacy, copyright, monopoly, contempt, and other aspects of the law applied to mass communication Previous study of the law not required

JOUR 410 History of Mass Communication (3) Development of newspapers, magazines, radio, television and motion pictures as media of mass communication Analysis of the influences of the media on the historical development of America

JOUR 420 Government and Mass Communication (3) Relationship between news media and government media coverage of government and politics, governmental and political information and persuasion techniques

JOUR 430 Comparative Mass Communication Systems (3) Comparative analysis of the role of the press in different societies

JOUR 440 Readings in Journalism Literature (3) Prerequisite JOUR 320 or permission of department Analysis of books by journalists highly regarded for writing style and/or the content of their reporting with an emphasis on understanding the books in the context of national and international affairs

JOUR 450 Mass Media in Society (3) Ethical, moral political, economic, and social consideration of mass communication

JOUR 451 Advertising and Society (3) Advertising as an institution with manifest economic purposes and latent social effects Influences of advertising on people, and related issues of ethics and social responsibility

JOUR 452 Women in the Media (3) Participation and portrayal of women in the mass media from colonial to contemporary times

JOUR 459 Special Topics in Mass Communication (3) Repeatable to 6 credits if content differs Issues of special concern and current interest Open to all students

JOUR 461 Newspaper Management (3) Organization, operation, and administration of the departments of a newspaper advertising, business-finance, circulation, news-editorial, personnel, production, and promotion

JOUR 471 Public Opinion Research (3) Measurement of public opinion and media habits; role of the mass media in the formation of public opinion

JOUR 477 Mass Communication Research (3) Prerequisite, MATH 110 or equivalent, students are encouraged to have completed the theory and technique courses in their major sequence Communication research methods used in measuring public opinion and evaluating public relations, advertising, and mass media programs and materials

JOUR 481 Writing the Complex Story (3) Pre- or corequisite, JOUR 371 Explanatory journalism technique applied to complex subjects (such as science, economics and large scale social change) for books, magazines and newspaper series

JOUR 483 Public Relations Campaigns (3) Prerequisite JOUR 331. Planning and execution of public relations campaigns for specific organizations, integration of public relations theories and techniques into a complete campaign

JOUR 484 Advertising Campaigns (3) Prerequisite JOUR 341 Planning and executing advertising campaigns in actual agency situations. Integration of advertising theories and techniques into a complete campaign

JOUR 486 Advanced Television Journalism (3) Prerequisite JOUR 361 or permission of department A skills course in which students assume major responsibility for the production of a weekly TV news and public affairs program Students will work on extended TV reporting assignments such as mini-series and news documentaries Note In addition to classroom time, students are required to devote time out of class in reporting and editing

JOUR 487 Literary Journalism (3) Pre- or corequisite JOUR 371 Practice in the use of literary techniques and especially of dramatic structure in modern newspaper series, magazine pieces and books. Analysis, researching and writing of nonfiction stories, usually with a focus on a specialized area chosen by the student

JOUR 490 Advising Student Publications (3) Journalistic writing and editing in student newspapers, yearbooks, and magazines, libel and policy, curriculum and teaching procedures, role of student publications.

JOUR 491 Policy, Censorship, and Legal Problems of Student Publications (3) Censorship problems and court cases, legal rights of the student press, formulation of policy and legal guidelines.

JOUR 492 Typography and Layout For Student Publications (3) Type design, type families, graphics, art, photography, and editorial and advertisement layout of school newspapers, yearbooks, and magazines

JOUR 493 Advanced Techniques For Student Publication Advisors (3) Interpretative and investigative reporting, interviewing and scientific survey methods, curriculum and courses for high school and community colleges, textbooks, teaching units, and resource aids

JOUR 494 Yearbook Short Course (1) Prerequisite JOUR 201 or permission of department Credit not applicable toward major in journalism Intensive course dealing with the theme, content, copy, design, advertising, budget, finance, law and ethics of yearbook development and production

LATN — Latin

LATN 101 Elementary Latin (4) Four hours of recitation per week A student who has had two units of Latin in high school may register for LATN 101 for purposes of review, but ordinarily not for credit

LATN 102 Elementary Latin (4) Four hours of recitation per week A student who has had two units of Latin in high school may register for LATN 102 for credit with departmental permission

LATN 120 Intensive Latin (4) Prerequisite: permission of instructor Not open for credit to students with credit for LATN 102 Elements of Latin grammar and vocabulary, elementary reading The first year's study of Latin compressed into a single semester

LATN 201 Intermediate Latin I (4) Prerequisites LATN 101 LATN 102 or equivalent Formerly LATN 203

LATN 204 Intermediate Latin II (3) Prerequisite: LATN 203 or equivalent

LATN 220 Intermediate Intensive Latin (4) Prerequisites LATN 102 or LATN 120, or equivalent Not open to students with credit for LATN 204 Review of Latin grammar, reading in prose and poetry from selected authors

LATN 301 Plautus (3) Plautine drama Literary, linguistic and socio-cultural aspects

LATN 302 Ovid (3) Major works of Ovidian poetry Literary and moral atmosphere of Augustan age

LATN 305 Vergil's Aeneid (3) Prerequisite LATN 204 or equivalent

LATN 319 Special Topics in Latin Literature (3) Repeatable for a maximum of six credits if the subject matter is different

LATN 351 Horace (3) Prerequisite LATN 305 or equivalent

LATN 352 Livy (3) Prerequisite: LATN 351 or equivalent

LATN 361 Pliny's Letters (3) Prerequisite: LATN 352 or equivalent

LATN 400 level course prerequisite: LATN 361

LATN 401 Latin Lyric Poetry (3) Latin lyric poetry. Emphasis on Horace and Catullus

LATN 402 Tacitus (3)

LATN 403 Roman Satire (3)

LATN 404 Roman Comedy (3)

LATN 405 Lucretius (3)

LATN 410 Latin Historiens (3) Latin historical writing as a literary genre Influences, style, and literary techniques

LATN 411 Advanced Latin Grammar (3) Prerequisite three years of college Latin or equivalent. An intensive study of the morphology and syntax of the Latin language supplemented by rapid reading

LATN 420 Cicero and Caesar (3) Reading and analysis of texts by M Tullius Cicero and C Iulius Ceasar, with emphasis on the relationships between them and on the period of the Civil War

LATN 424 Silver Latin (3) Reading and analysis of selected texts Emphasis on the role of Nero and Seneca in literary developments

LATN 472 Historical Development of the Latin Language (3) An analysis of the development of the Latin language from archaic times to the Middle Ages Credit will not be granted for both LATN 472 and LING 431

LATN 488 Latin Readings (1-3) Prerequisite permission of department The reading of one or more selected Latin authors from antiquity through the Renaissance Reports May be repeated with different content

LATN 490 Survey of Latin Literature (3) Survey of major authors and genres, with extensive readings from a variety of authors and review of grammar

LATN 499 Independent Study in Latin Language and Literature (3) Prerequisite permission of department Repeatable to a maximum of six credits

LBSC — Library Science

LBSC 381 Basic Reference and Information Sources (3) An introductory course in the nature of reference/information service and the sources, tools, and technology essential to the reference process Selection, evaluation and utilization of all types of reference tools for library media centers

LBSC 383 Library Materials For Children and Youth (3) Study of literature and media for children and youth, including fiction and information materials books, periodicals video, filmstrips, films, microforms, records, pictures, pamphlets Introduction to reading, viewing, and listening guidance techniques

LBSC 488 Recent Trends and Issues in Library and Information Services (1-3) Repeatable to 9 credits. Discussions of recent trends and issues in library and information services, designed for practicing professionals

LBSC 499 Workshops, Clinics, and Institutes (1-9) Repeatable to 9 credits Workshops, clinics, and institutes developed around specific topics or problems primarily for practicing librarians

LING — Linguistics

LING 100 Study of Languages (3) The nature of languages and approaches to the study of languages Discussion of sounds and forms, clarification of terminology relevant to the learning of a second language Survey of language types and writing systems Cannot be used to satisfy division foreign language requirement Credit will not be given for both LING 100 and LING 200

LING 200 Introductory Linguistics (3) Ways of studying human language, basic concepts of modern linguistic analysis (sound systems, word formation, syntax, meaning). The nature of human language, the social aspects of language, language change, dialects; writing systems; language universals, etc. Credit will not be given for both LING 100 and LING 200 Not open for credit to students who have credit in ENGL 280, ANTH 371, or HESP 120.

LING 240 Language and Mind (3) The study of language as a cognitive phenomenon Ways of representing people's knowledge of their native language, ways in which that knowledge is attained naturally by children, and how it is used in speaking and listening Relevant philosophical literature Relationship to study of other cognitive abilities reasoning, perception, sensory-motor development

LING 300 Concepts of Grammar (3) Introduction to the basic units of language description. Nature of and reasons for constituent structure and syntactic categories Fundamental tools for language description needed for teaching and learning foreign languages

LING 311 Syntax I (3) Prerequisite LING 240 Basic concepts, analytical techniques of generative syntax, relation to empirical limits imposed by viewing grammars as representations of a component of human mind Aspects of current theories

LING 312 Syntax II (3) Prerequisite LING 311 Continuation of LING 311 Development of theories of syntax Criteria for revising theories Methods and strategies of 'scientific' efforts to explain natural phenomena

LING 321 Phonology I (3) Prerequisite LING 240 Properties of sound systems of human languages, basic concepts and analytical techniques of generative phonology Empirical limits imposed by viewing grammars as cognitive representations Physiological properties and phonological systems, articulatory phonetics and distinctive feature theory.

LING 322 Phonology II (3) Prerequisite LING 321 Continuation of LING 321 Development of theories of phonology Criteria for revising theories

LING 330 Historical Linguistics (3) A traditional presentation of language change Language types and families, sounds and writing systems, grammatical categories Reconstruction of proto-languages by internal and comparative methods

LING 350 Philosophy of Language (3) Prerequisite PHIL 170, 173 or 371 or LING 311 The nature and function of language and other forms of symbolism from a philosophical perspective

LING 410 Grammar and Meaning (3) Prerequisite LING 312 The basic notions of semantic theory reference, quantification, scope relations, compositionality, thematic relations, tense and time, etc The role these notions play in grammars of natural languages Properties of logical form and relationship with syntax

LING 411 Comparative Syntax (3) Prerequisite LING 312 Comparison of data from a variety of languages with respect to some aspect of current versions of syntactic theory in order to investigate how parameters of universal grammar are fixed differently in different languages Attempts to work out fragments of grammars for some languages

LING 419 Topics in Syntax (3) Repeatable to a maximum of six credits if subject matter is different

LING 420 Word Formation (3) Prerequisite LING 322 Definition of shape and meaning of possible words, both across languages and within particular languages Interaction between principles of word formation and other components of a grammar syntax, logical form and phonology

LING 421 Advanced Phonology (3) Prerequisite LING 322 Topics in current phonological theory as they relate to data from the sound systems of various languages Segmental and prosodic analysis Discussion of autosegmental theory, metrical theory, etc

LING 429 Topics in Phonology (3) Repeatable to a maximum of six credits if subject matter is different

LING 430 Language Change (3) Prerequisite LING 240 Changes in grammars from generation to generation Consequences for the theory of grammars Traditional work on historical change

LING 431 Indo-European Studies (3) Prerequisite LING 330 Reconstruction of Proto-Indo-European according to the theories of the Neo-grammarians and their followers The development of Proto-Indo-European into its descendent languages Credit will not be granted for both LATN 472 and LING 431

LING 439 Topics in Diachronic Linguistics (3) Repeatable to a maximum of six credits if subject matter is different

LING 440 Grammars and Cognition (3) Prerequisite LING 240 Relationship between the structure, development and functioning of grammars and the structure, development and functioning of other mental systems Interpretations of experimental and observational work on children's language, aphasia, speech production and comprehension

LING 445 Computer Models of Language (3) Prerequisite LING 240 The use of linguistic theory to improve psychological models of language comprehension Formal and computer modelling of language processing systems

LING 451 Grammars and Variation (3) Prerequisite LING 311 Grammars and the use of language in a variety of styles formal, casual, literary, etc Consequences for concepts of grammars Variation theory Literary styles

LING 453 Mathematical Approaches to Language (3) Prerequisite LING 312 The aspects of mathematics used in linguistic discussions recursion theory, Chomsky's hierarchy of grammars, set theory, Boolean algebra , finite state grammars, context-free grammars, etc Applications to theories of grammars Formalizations of grammatical theories

LING 455 Second Language Teaching (3) Relationship between theories of grammars, and techniques used for teaching and learning second languages, and for the teaching and learning of English in schools

LING 457 Grammars and Discourse (3) Prerequisite LING 240 The use of a person's grammar in communication, sentence production Speech act theory, pragmatics

LING 499 Directed Studies in Linguistics (1-3) Prerequisite consent of instructor Independent study or research on language under the supervision of a faculty member Repeatable to a maximum of six credits if the subject matter is different

MAPL — Applied Mathematics

MAPL 460 Computational Methods (3) Prerequisites MATH 240, and MATH 241 and CMSC 110 or CMSC 113 Also offered as CMSC 460 Basic computational methods for interpolation, least squares, approximation, numerical quadrature, numerical solution of polynomial and transcandental equations, systems of linear equations and initial value problems for ordinary differential equations Emphasis is on methods and their computational properties rather than their analytic aspects Intended primarily for students in the physical and engineering sciences Credit will not be granted for both CMSC/MAPL 460 and CMSC/MAPL 466

MAPL 466 Introduction to Numerical Analysis I (3) Prerequisites MATH 240, and MATH 241 and CMSC 110 or equivalent Also offered as CMSC 466 Floating point computations; direct methods for linear systems interpolation solution of nonlinear equations Credit will not be granted for both CMSC/MAPL 460 and CMSC/MAPL 466

MAPL 467 Introduction to Numerical Analysis II (3) Prerequisite MAPL/CMSC 466 Advanced interpolation, linear least squares eigenvalue problems ordinary differential equations, Fast Fourier Transforms (also listed as CMSC 467)

MAPL 477 Optimization (3) Prerequisite CMSC/MAPL 460, 466 or 467 Linear programming including the simplex algorithm and dual linear programs convex sets and elements of convex programming, combinatorial optimization, integer programming Credit will not be granted for both CMSC 477 and MAPL 477

MAPL 498 Selected Topics in Applied Mathematics (1-3) Prerequisite: permission of the instructor. Topics in applied mathematics of special interest to advanced undergraduate students. May be repeated to a maximum of six credits if the subject matter is different.

MATH — Mathematics

MATH 001 Review of High School Algebra (3) Recommended for students who plan to take MATH 110 or MATH 002 but are not currently qualified to do so. Review of the algebraic skills fundamental to any further study of mathematics. Exponents, polynomials, linear equations in one and two variables, quadratic equations. Special fee required in addition to the regular tuition charge. This course does not carry credit towards any degree at the University.

MATH 002 Advanced Review of High School Algebra (3) Recommended for students who plan to take but who are not currently qualified for MATH 115. Prerequisite: MATH 001 or satisfactory score on the mathematics placement exam. Review of high school algebra at a faster pace and at a more advanced level than MATH 001. Exponents, polynomials, linear equations in one and two variables, quadratic equations, and polynomial, rational, exponential and logarithmic functions. Special fee required in addition to the regular tuition charge. This course does not carry credit towards any degree at the University.

MATH 110 Elementary Mathematical Models (3) Prerequisite: permission of department based on satisfactory score on the mathematics placement exam, or MATH 001. Elementary introduction to models useful in the biological, management, and social sciences. Matrices, systems of linear equations, and linear inequalities in two or three variables are used to solve simple but representative problems in linear programming, stochastic processes, game theory, and the mathematics of mortgages and annuities.

MATH 111 Introduction to Probability (3) Prerequisite: permission of department based on satisfactory score on the mathematics placement exam, or MATH 110, or MATH 115. Logic, Boolean algebra, counting, probability, random variables, expectation applications of the normal probability distribution. Credit will not be granted for both MATH 111 and STAT 100. (Not open to students majoring in mathematics, engineering or the physical sciences)

MATH 115 Precalculus (3) Prerequisite: permission of department based on satisfactory score on the mathematics placement exam or MATH 002. Preparation for MATH 220 or MATH 140. Elementary functions and graphs: polynomials, rational functions, exponential and logarithmic functions, trigonometric functions. Algebraic techniques preparatory for calculus.

MATH 140 Calculus I (4) Prerequisite: permission of department based on 3 1/2 years of college preparatory mathematics (including trigonometry) and satisfactory score on the mathematics placement exam or MATH 115. Introduction to calculus, including functions, limits, continuity, derivatives and applications of the derivative, sketching of graphs of functions, definite and indefinite integrals, and calculation of area. The course is especially recommended for science and mathematics majors. Credit will not be granted for both MATH 140 and MATH 220.

MATH 141 Calculus II (4) Three lectures and two drill periods per week. Prerequisite: MATH 140 or equivalent. Continuation of MATH 140, including techniques of integration, improper integrals, applications of integration (such as volumes, work, arc length, moments), inverse functions, exponential and logarithmic functions, sequences and series. Credit will be given for only one course, MATH 141 or MATH 221.

MATH 150 Calculus I (Honors) (4) Prerequisite: approval of department. A rigorous treatment, with applications, of differential and integral calculus in one variable.

MATH 151 Calculus II (Honors) (4) Prerequisite: approval of department. A rigorous treatment, with applications, of differential and integral calculus in one variable.

MATH 210 Elements of Mathematics (4) Prerequisite: one year of college preparatory algebra. Required for majors in elementary education, and open only to students in this field. Topics from algebra and number theory, designed to provide insight into arithmetic inductive proof, the natural number system based on the Peano axioms, mathematical systems, groups, fields, the system of integers, the system of rational numbers, congruence, divisibility, systems of numeration.

MATH 211 Elements of Geometry (4) Prerequisite: MATH 210 or equivalent. Structure of mathematics systems, algebra of sets, geometrical structures, logic, measurement, congruence, similarity, graphs in the plane, geometry on the sphere.

MATH 220 Elementary Calculus I (3) Prerequisite: permission of department based on 3 1/2 years of college preparatory mathematics (including trigonometry) and satisfactory performance on the mathematics placement exam, or MATH 115. Basic ideas of differential and integral calculus, with emphasis on elementary techniques of differentiation and applications. Credit will not be granted for both MATH 140 and MATH 220. (Not open to students majoring in mathematics, engineering or the physical sciences)

MATH 221 Elementary Calculus II (3) Prerequisite: MATH 220, or MATH 140, or equivalent. Differential and integral calculus, with emphasis on elementary techniques of integration and applications. Not open to students majoring in mathematics, engineering or the physical sciences. Credit will be given for only one course, MATH 141 or MATH 221.

MATH 240 Introduction to Linear Algebra (4) Three lectures, two drill periods per week. Prerequisite: MATH 141 or equivalent. Basic concepts of linear algebra: vector spaces, applications to line and plane geometry, linear equations and matrices, similar matrices, linear transformations, eigenvalues, determinants and quadratic forms. Credit will be given for only one course, MATH 240 or MATH 400 or MATH 461.

MATH 241 Calculus III (4) Prerequisite: MATH 141 and any one of the following: MATH 240, or ENES 110, or PHYS 191. Introduction to multivariable calculus, including vectors and vector-valued functions, partial derivatives and applications of partial derivatives (such as tangent planes and LaGrange multipliers), multiple integrals, volume, surface area and the classical theorems of Green, Stokes and Gauss.

MATH 246 Differential Equations For Scientists and Engineers (3) Prerequisite: MATH 141 or equivalent. An introduction to the basic methods of solving ordinary differential equations. Equations of first and second order, linear differential equations, Laplace transforms, numerical methods, and the qualitative theory of differential equations.

MATH 250 Calculus III (Honors) (4) Prerequisite: approval of department. Elements of linear algebra, Euclidean and other metric spaces; multi-variable calculus, implicit function theorem, theorems of Green, Gauss and Stokes. Riemann Stieltjes integral and, as time permits, ordinary differential equations, Fourier series, orthogonal functions.

MATH 251 Calculus IV (Honors) (4) Prerequisite: approval of department. Elements of linear algebra, Euclidean and other metric spaces; multi-variable calculus, implicit function theorem, theorems of Green, Gauss and Stokes. Riemann Stieltjes integral and, as time permits, ordinary differential equations, Fourier series, orthogonal functions.

MATH 256 Introduction to Numerical Analysis (3) Prerequisite: MATH 141. Students will need to spend considerable time in the PC lab on campus or have access to a PC off campus. Numerical techniques implemented on microcomputers in the language True Basic. Problems in root finding, interpolation, numerical integration and differentiation, linear (algebraic) systems of equations, spline approximation, and ordinary differential equations. Examination of errors.

MATH 299 Selected Topics in Mathematics (1-3) Prerequisite: permission of the instructor. Topics of special interest under the general guidance of the departmental committee on undergraduate studies.

MATH 310 Introduction to Mathematical Reasoning (3) Prerequisite: MATH 141. Recommended pre- or co-requisite: MATH 241. Intended to bridge the gap between calculus and advanced calculus. Introduction to the logical foundations of mathematics and to the technique of proving theorms. Topics drawn from: logic, set theory, structure of the real line, elementary topology, convergence, functions, infinite sets, continuity. (This course cannot be used towards the upper level math requirements for MATH/STAT majors.)

MATH 398 Honors Seminar (2) Prerequisite: permission of the departmental honors committee. Reports by students on mathematical literature, solution of various problems.

MATH 400 Vectors and Matrices (3) Prerequisites: MATH 221 or equivalent. The essentials of matrix theory needed in the management, social and biological sciences. Main topics: systems of linear equations, linear independence, rank, orthogonal transformations, eigenvalues, the principal axes theorem. Typical applications: linear models in economics and in statistics, Markov chains, age-specific population growth. Not open to students in the MPSE Division. Credit will be given for only one of MATH 240, MATH 400, or MATH 461.

MATH 401 Applications of Linear Algebra (3) Prerequisite: MATH 400, or MATH 240, or consent of instructor. Various applications of linear algebra: theory of finite games, linear programming, matrix methods as applied to finite Markov chains, random walk, incidence matrices, graphs and directed graphs, networks, transportation problems.

MATH 402 Algebraic Structures (3) Prerequisite: MATH 240 or equivalent. For students having only limited experience with rigorous mathematical proofs and parallels MATH 403. Students planning graduate work in mathematics should take MATH 403. Groups, rings, integral domains and fields, detailed study of several groups, properties of integers and polynomials. Emphasis is on the origin of the mathematical ideas studied and the logical structure of the subject. (Not open to mathematics graduate students. Credit will be given for only one of the courses MATH 402 or MATH 403.)

MATH 403 Introduction to Abstract Algebra (3) Prerequisites: MATH 240 and MATH 241 or equivalent. Integers, groups, rings, integral domains, fields. (Credit will be given for only one of the courses, MATH 402 or MATH 403.)

MATH 404 Field Theory (3) Prerequisite: MATH 403. Algebraic and transcendental elements. Galois theory: constructions with straight-edge and compass, solutions of equations of low degrees, insolubility of the Quintic, Sylow theorems, fundamental theorem of finite Abelian groups.

MATH 405 Linear Algebra (3) Prerequisites: MATH 240 and MATH 403 or consent of instructor. An abstract treatment of finite dimensional vector spaces. Linear transformations and their invariants.

MATH 406 Introduction to Number Theory (3) Prerequisite: MATH 141 or MATH 221 or consent of instructor. Rational integers, divisibility, prime numbers, modules and linear forms, unique factorization theorem, Euler's function, Mobius' function, cyclotomic polynomial, congruences and quadratic residues. Legendre's and Jacobi's symbol, reciprocity law of quadratic residues, introductory explanation of the method of algebraic number theory.

MATH 410 Advanced Calculus I (3) Prerequisites: MATH 240 and MATH 241. First semester of a year course. Subjects covered during the year are: sequences and series of numbers, continuity and differentiability of real valued functions of one variable, the Rieman integral, sequences of functions, and power series. Functions of several variables including partial derivatives, multiple integrals, line and surface integrals. The implicit function theorem.

MATH 411 Advanced Calculus II (3) Prerequisite: MATH 410, and MATH 240 or MATH 400. Continuation of MATH 410.

MATH 414 Differential Equations (3) Prerequisites: MATH 410, and MATH 240 or equivalent. Existence and uniqueness theorems for initial value problems. Linear theory: fundamental matrix solutions, variation of constants formula, floquet theory for periodic linear systems. Asymtotic orbital and Lyapunov stability with phase plane diagrams. Boundary value theory and series solutions.

MATH 415 Introduction to Partial Differential Equations (3) Prerequisites: MATH 246, and MATH 411 or MATH 251. (MATH 411 and MATH 415 may be taken concurrently.) First order equations, linear second order equations in two variables, one dimensional wave equation and the method of separation of variables, and other topics such as harmonic functions, the heat equation, and the wave equation in space. (Credit will be given for only one of the courses MATH 415 or MATH 462.)

MATH 417 Introduction to Fourier Analysis (3) Prerequisite: MATH 410. Fourier series. Fourier and Laplace transforms.

MATH 430 Euclidean and Non-Euclidean Geometries (3) Prerequisites: MATH 140, MATH 141 or equivalent. Hilbert's axioms for Euclidean geometry. Neutral geometry: the consistency of the hyperbolic parallel postulate and the inconsistency of the elliptic parallel postulate with neutral geometry. Models of hyerbolic geometry. Existence and properties of isometries.

MATH 432 Introduction to Point Set Topology (3) Prerequisite: MATH 410 or equivalent. Connectedness, compactness, transformations, homomorphisms, application of these concepts to various spaces, with particular attention to the Euclidean plane.

MATH 433 Introduction to Algebraic Topology (3) Prerequisite: MATH 403 and 432, or equivalent. Chains, cycles, homology groups for surfaces, the fundamental group.

MATH 436 Introduction to Differential Geometry (3) Prerequisites: MATH 241, and either MATH 240 or MATH 461, or equivalent. The differential geometry of curves and surfaces, curvature and torsion, moving frames, the fundamental differential forms, intrinsic geometry of a surface.

MATH 444 Elementary Logic and Algorithms (3) Prerequisite: MATH 240 or consent of instructor. An elementary development of propositional logic, predicate logic, set algebra, and Boolean algebra, with a discussion of Markov algorithms, Turing machines and recursive functions. Topics include post productions, word problems and formal languages. (Also listed as CMSC 450)

MATH 446 Axiomatic Set Theory (3) Prerequisite MATH 403 or 450 or consent of instructor. Development of a system of axiomatic set theory, choice principles, induction principles, ordinal arithmetic including discussion of cancellation laws, divisibility, canonical expansions, cardinal arithmetic including connections with the axiom of choice, Hartog's theorem, König's theorem, properties of regular singular, and inaccessible cardinals

MATH 447 Introduction to Mathematical Logic (3) Prerequisite MATH 403 or 410 or 450. Formal propositional logic, completeness, independence, decidability of the system, formal quantificational logic, first-order axiomatic theories, extended godel completeness theorem, Lowenheim-Skolem theorem, model-theoretical applications

MATH 450 Fundamental Concepts of Mathematics (3) Prerequisite MATH 240 or consent of instructor. Sets, relations, mappings. Construction of the real number system starting with Peano postulates, algebraic structures associated with the construction, Archimedean order, sequential completeness and equivalent properties of ordered fields. Finite and infinite sets, denumberable and nondenumberable sets

MATH 461 Linear Algebra For Scientists and Engineers (3) Prerequisites: MATH 141 and one MATH/STAT course for which MATH 141 is a prerequisite. Basic concepts of linear algebra. This course is similar to MATH 240, but with more extensive coverage of the topics needed in applied linear algebra: change of basis, complex eigenvalues, diagonalization, the Jordan canonical form. Credit will be given for only one of MATH 240, MATH 400 or MATH 461.

MATH 462 Partial Differential Equations For Scientists and Engineers (3) Prerequisites: MATH 241 and MATH 246. Linear spaces and operators, orthogonality, Sturm-Liouville problems and eigenfunction expansions for ordinary differential equations, introduction to partial differential equations, including the heat equation, wave equation and Laplace's equation, boundary value problems, initial value problems, and initial-boundary value problems. (Credit will be given for only one of the courses MATH 462 or MATH 415.)

MATH 463 Complex Variables For Scientists and Engineers (3) Prerequisite: MATH 241 or equivalent. The algebra of complex numbers, analytic functions, mapping properties of the elementary functions. Cauchy integral formula. Theory of residues and application to evaluation of integrals. Conformal mapping.

MATH 464 Transform Methods For Scientists and Engineers (3) Prerequisites: MATH 246 and MATH 463. Fourier series, Fourier and Laplace transforms. Evaluation of the complex inversion integral by the theory of residues. Applications to ordinary and partial differential equations of mathematical physics: solutions using transforms and separation of variables. Additional topics such as Bessel functions and calculus of variations.

MATH 475 Combinatorics and Graph Theory (3) Prerequisite: MATH 240 and MATH 241. General enumeration methods, difference equations, generating functions. Elements of graph theory, matrix representations of graphs, applications of graph theory to transport networks, matching theory and graphical algorithms. (Also listed as CMSC 475.)

MATH 478 Selected Topics For Teachers of Mathematics (1-3) Prerequisite: one year of college mathematics or consent of instructor. (This course cannot be used toward the upper level math requirements for MATH/STAT majors.)

MATH 481 Introduction to Number Theory (3) Prerequisite: one year of college mathematics or consent of instructor. Elementary number theory and the development of the real numbers for teachers. (Not open to students majoring in mathematics or physical sciences.)

MATH 482 Introduction to Algebra (3) Prerequisite: one year of college mathematics or consent of instructor. Modern ideas in algebra and the theory of equations for teachers. (Not open to students majoring in mathematics or physical sciences.)

MATH 483 Introduction to Geometry (3) Prerequisite: one year of college mathematics or consent of instructor. A study of basic ideas from Euclidean and non-Euclidean geometry for teachers. (Not open to students majoring in mathematics or physical sciences.)

MATH 484 Introduction to Analysis (3) Prerequisite: one year of college mathematics or consent of instructor. A study of the limit concept and the calculus for teachers. Previous knowledge of calculus is not required. (Not open to students majoring in mathematics or physical sciences.)

MATH 488 National Science Foundation Summer Institute For Teachers of Science and Mathematics: Seminar (1-3) Lectures and discussion to deepen the student's appreciation of mathematics as a logical discipline and as a medium of expression. Special emphasis on topics relevant to current mathematical curriculum studies and revision. (Not open to students majoring in mathematics not recommended for students majoring in any of the physical sciences.)

MATH 498 Selected Topics in Mathematics (1-16) Prerequisite: permission of the instructor. Topics of special interest to advanced undergraduate students will be offered occasionally under the general guidance of the departmental committee on undergraduate studies. Honors students register for reading courses under this number.

MEES — Marine-Estuarine-Environmental Sciences

MEES 440 Essentials of Toxicology (2) Prerequisite: BCHM 261 or 461. Principles involved in the assessment of responses of organisms to toxic chemicals, including systemic and organ toxicology, carcinogenesis, teratogenesis, and consideration of the effects of major groups of toxicants.

MEES 498 Topics in Marine-Estuarine-Environmental Sciences (1-4) Lecture and/or laboratory series organized to study a selected area of marine-estuarine-environmental sciences not otherwise considered in formal courses.

METO — Meteorology

METO 100 Weather and Life (3) A study of weather: how it works, and how it affects human endeavors. The energy of weather systems and the physics of storms and atmospheric air circulations, weather observations from earth and space, air pollution and acid rain, clouds, storms and unusual weather phenomena, the problem of weather prediction, weather modification, and the relations between weather and human health, agriculture, economics, and world history. (METO 100 and METO 301 may not both be taken for credit).

METO 301 Introduction to Meteorology (3) Prerequisites: CHEM 113, PHYS 122 or equivalent. A broad survey of the state of knowledge and problems of atmospheric science. Origin and structure of the atmosphere, meteorological observations, weather maps, forecasting, satellites, energetics, wind, general circulation, storms, severe weather, climate change, air pollution, and weather modification. (METO 301 and METO 100 may not both be taken for credit).

METO 398 Topics in Atmospheric Science (3) Intended primarily for non-science majors. Study of some aspects of atmosphere sciences as applied to the environment. Repeatable to a maximum of six credits provided the subject matter is different.

METO 410 General Meteorology I (3) Prerequisite: MATH 241. Pre- or corequisite: PHYS 294 or 263. An introduction to the broad range of theoretical and applied studies in meteorology, to acquaint the student with the interaction of the physical and dynamic processes and the various scales of atmospheric phenomena. Introduction to radiational energy transfer in the atmosphere, earth-atmospheric energy budgets, atmospheric thermodynamics.

METO 411 General Meteorology II (3) Prerequisite: METO 410. METO 460 suggested as a companion course. A continuation of METO 410 including an introduction to the concepts of vorticity and circulation in the atmosphere, properties of cold fronts and warm fronts, cyclones and anticyclones, air masses, thunderstorms, elements of dynamic weather forecasting, microphysics of cloud formation and precipitation, turbulence and diffusion in the atmosphere.

METO 412 Physics and Thermodynamics of the Atmosphere (3) Prerequisites: MATH 241, PHYS 263. An introduction to atmospheric radiation, cloud physics, and basic thermodynamic processes and applications to the atmosphere.

METO 416 Introduction to Atmospheric Dynamics (3) Prerequisites: MATH 241, 246, PHYS 263. The equations of atmospheric motion, coordinate systems, balanced flows and elementary application, divergence, circulation and vorticity, the planetary boundary layer, diagnostic analysis with the quasi-geotrophic equations.

METO 420 Physical and Dynamical Oceanography (3) Prerequisite: METO 410 or a basic course in fluid dynamics such as ENME 340. Historical review of oceanography, physical, chemical, stratification and circulation properties of the ocean, dynamics of frictionless frictional, wind driven and thermohaline circulation, air-sea interactions.

METO 422 Oceanic Waves, Tides and Turbulence (3) Prerequisite: METO 420. Introduction to the theory of oceanic wave motions: tides, wind waves, swells, storm surges, seiches, tsunamis, internal waves, turbulence, stirring, mixing and diffusion, probability, statistics and time series.

METO 434 Air Pollution (3) Prerequisites: CHEM 113 and MATH 141. Production, transformation, transport and removal of air pollutants. The problems of photochemical smog, the greenhouse effect, stratospheric ozone, acid rain and visibility. Nuclear weapons effect on the atmosphere. Analytical techniques for gases and particles. Health and environmental effects of air pollution.

METO 460 Synoptic Meteorology I (3) Pre- or corequisite: METO 411 or equivalent. Two three-hour lecture, laboratory periods per week. The three-dimensional structure of synoptic scale systems and their relation to underlying dynamical principles. Weather map plotting and analysis techniques. Satellite imagery interpretation. Meteorological data acquisition and use.

METO 461 Synoptic Meteorology II (3) Prequisite: METO 460. Synoptic meteorology applied to the modern weather forecast. The history of forecasting. Polar Front theory, surface and upper air analysis, baroclinic instability, numerical forecasting, interpreting computer forecasts, probability forecasting, forecast evaluation.

METO 499 Special Problems in Atmospheric Science (1-3) Prerequisite: consent of instructor. Research or special study in the field of meteorology and the atmospheric and oceanic sciences. Repeatable to a maximum of 6 credits.

MICB — Microbiology

MICB 100 Basic Microbiology (4) Three lectures and one two-hour laboratory per week. An introduction to the world of microorganisms that is designed for the general student. A survey of microscopic life forms and their activities that emphasizes their importance for human welfare. This course is not intended for students majoring in biological or allied health sciences and it cannot be used to fulfill the 24 credits required for a major in microbiology. Credit not allowed for both MICB 100 and MICB 200.

MICB 200 General Microbiology (4) Two lectures and two two-hour laboratory periods a week. Prerequisite: two semesters of chemistry. The biology of microorganisms with special reference to the bacteria. Fundamental principles of microbiology as revealed through an examination of the structure, physiology, genetics and ecology of microorganisms.

MICB 300 Microbiological Literature (1) One lecture period a week. Prerequisite: a major in microbiology. Introduction to periodical literature, methods, interpretation and presentation of reports.

MICB 310 Applied Microbiology (4) Two lectures and two two-hour laboratory periods per week. Prerequisite: MICB 200. The application of microorganisms and microbiological principles to industrial processes. Control of microorganisms, sterilization, disinfection, antibiotics, industrial fermentations.

MICB 322 Microbiology and the Public (3) Three lectures per week. A course for general (non-science) students in which they will be made aware of the ways in which epidemic disease, water pollution, immunization requirements, solid waste disposal and the like, impinge on current social and political problems in the American community.

MICB 360 Medical Virology (3) Prerequisite: MICB 200 for the student interested in a health related career. Focus on the host response to viral infection. Material includes summary of virus structure and multiplication, review of the biology of the immune response and systematic coverage of the pathogenesis and pathology of major viral diseases.

MICB 379 Honors Research (2-3) Prerequisite: admission to departmental honors program. Research project carried out under guidance of faculty advisor. Repeatable to a total of 12 credits.

MICB 380 Bacterial Genetics (4) Prerequisites: CHEM 243 or 245 and 8 credits in microbiology. Two lectures and two-hour laboratory periods a week. Organization, replication, expression, mutation and transfer of the genetic material of bacteria and bacteriophages. Techniques of study.

MICB 388 Special Topics in Microbiology (1-4) Prerequisite: eight credits in microbiology or consent of instructor. Presentation and discussion of special subjects in the field of microbiology. A maximum of four credit hours of MICB 388 may be applied to a major in microbiology.

MICB 399 Microbiological Problems (3) Prerequisite: 16 credits in microbiology registration only upon the consent of the instructor. This course is arranged to provide qualified majors in microbiology and majors in applied fields an opportunity to pursue specific microbiological problems under the supervision of a member of the department.

MICB 400 Systematic Microbiology (2) Two lecture periods a week Prerequisite 8 credits in microbiology or consent of instructor History and philosophy of classification Alpha, numerical and molecular genetic taxonomy Methods used in microbial identification and classification

MICB 410 History of Microbiology (1) Prerequisite a major in microbiology or consent of instructor History and integration of the fundamental discoveries of the science Modern aspects of abiogenesis, fermentation, and disease causation in relation to early theories

MICB 420 Epidemiology and Public Health (2) Prerequisite MICB 200 History, characteristic features of epidemiology, the important responsibilities of public health, vital statistics

MICB 430 Marine Microbiology (2) Prerequisite MICB 200 Morphology, biochemistry and ecology of marine microorganisms including fungi, yeasts, bacteria and viruses Properties of marine bacteria, such as luminescence, metal ion requirements for growth, production of ectocrine compounds, and sampling and culturing marine microorganisms

MICB 431 Marine Microbiology Laboratory (3) One lecture and two three-hour laboratory periods per week Prerequisites MICB 200 and permission of the instructor Morphology, biochemistry and ecology of marine microorganisms Properties of marine bacteria, luminescence, metal ion requirements, ectocrine compound production, sampling and culturing Laboratory may include sampling trips in Chesapeake Bay and a deep sea research cruise

MICB 440 Pathogenic Microbiology (4) Two lectures and two two-hour laboratory periods a week Prerequisite MICB 200 The role of bacteria and fungi in the diseases of man with emphasis upon the differentiation and culture of microorganisms, types of disease, modes of disease transmission, prophylactic, therapeutic, and epidemiological aspects

MICB 450 Immunology (4) Two lectures and two two-hour laboratory periods a week Prerequisite: MICB 440 Principles of immunity hypersensitiveness Fundamental techniques of immunology Credit not given for both ZOOL 455 and MICB 450

MICB 453 Recombinant DNA Laboratory (3) Pre or corequisite ZOOL 452, MICB 452 or permission of the instructor An advanced course offering hands-on experience in performing recombinant DNA experiments Techniques required for cloning procaryotic genes in Escherichia coli Credit not given for both MICB 453 and ZOOL 453

MICB 460 General Virology (3) Prerequisite: MICB 440 or equivalent Discussion of the physical and chemical nature of viruses, virus cultivation and assay methods, virus replication, viral diseases with emphasis on the oncogenic viruses, viral genetics, and characteristics of the major virus groups

MICB 470 Microbial Physiology (3) Prerequisite MICB 200 Pre- or co-requisite BCHM 462 Microbial cellular and population growth, Fermentation metabolism, physiology of anaerobiosis, and energy conservation and transformation in bacterial membranes Efficiency of energy utilization for growth Membrane structure and transport Bacterial chemotaxis Regulation of bacterial chromosome replication, RNA and protein synthesis Control of metabolic pathways

MICB 480 Microbial Ecology (3) Prerequisites MICB 200 and CHEM 243 or 245 Interaction of microorganisms with the environment, other microorganisms and with higher organisms Roles of microorganisms in the biosphere Microorganisms and current environmental problems

MICB 490 Microbial Fermentations (3) Prerequisite MICB 470 or consent of instructor Study of fermentative metabolism in bacteria and yeasts, primary and secondary metabolities, culture and medium development, mass cultivation of microorganisms, industrial processes for organic solvents, acids, amino acids, antibiotics, bioconversions, immobilized enzyme and cell reactors, special problems with genetically engineered cultures

MICB 491 Microbial Fermentations Laboratory (2) Second semester Two two-hour laboratory periods a week Prerequisite MICB 490, or concurrent registration in MICB 490, and consent of instructor Methods for the conduct, control and analysis of fermentation processes.

MUED — Music Education

MUED 197 Pre-Professional Experiences (1) An orientation into the role of the music teacher in the school and community Class meets one hour a week for planning and discussion Students spend one afternoon a week assigned to various music education activities Limited to music education majors

MUED 352 Music For the Elementary Classroom Teacher (2-3) Prerequisite MUSC 155 or consent of instructor For non-music majors Methods for guiding elementary school students in musical experiences development of objectives, and a survey of instructional materials

MUED 410 Instrumental Arranging (2) Prerequisites MUSC 250 and permission of instructor Arranging for school bands and orchestras from the elementary through high school levels

MUED 411 Instrumental Music: Methods and Materials For the Elementary School (3) A comprehensive study of instructional materials and teaching techniques for beginning instrumental classes-winds strings and percussion

MUED 420 Instrumental Music: Methods, Materials and Administration For Secondary School (2) A comprehensive study of instructional and program materials, rehearsal techniques and program planning for junior and senior High School bands and orchestras Organization, scheduling, budgeting and purchasing are included

MUED 438 Special Problems in the Teaching of Instrumental Music (2-3) Prerequisite MUSC 113-213 or the equivalent A study, through practice on minor instruments, of the problems encountered in public school teaching of orchestral instruments Literature and teaching materials, minor repairs, and adjustment of instruments are included The course may be taken for credit three times since one of four groups of instruments strings, woodwind, brass or percussion will be studied each time the course is offered

MUED 450 Music in Early Childhood Education (3) Prerequisite: MUSC 155 or equivalent Creative experiences in songs and rhythms, correlation of music and everyday teaching with the abilities and development of each level, study of songs and materials, observation and teaching experience with each age level

MUED 460 Creative Activities in the Elementary School (2-3) Prerequisite music methods or teaching experience A study of the creative approach to the development of music experiences for children in the elementary grades emphasizing contemporary music and contemporary music techniques.

MUED 470 General Concepts For Teaching Music (1) Corequisite MUED 411 or 471 Basic philosophical, psychological, educational considerations for a total music program K-12; strategies for teaching tonal and rhythmic concepts; evaluation techniques and field experiences in designated schools.

MUED 471 Methods For Teaching Elementary General Music (3) A study of curriculum, materials, and teaching techniques for the development of meaningful music experiences which contribute to a sequential musical growth for children in the elementary schools

MUED 472 Choral Techniques and Repertoire (2) Prerequisites MUED 470 and MUSC 490. Rehearsal techniques for developing appropriate diction, tone, production, intonation, phrasing, and interpretation of choral music; examination of a wide variety of repertoire for use by choral performing groups on the elementary and secondary levels

MUED 478 Special Topics in Music Education (1-2) Prerequisite: MUED 470 or consent of department Each topic focuses on a specific aspect of the music instructional program, collectively, the topics cover a wide range of subject matter relevant to today's schools May be repeated to a maximum of six credits

MUED 480 The Vocal Music Teacher and School Organization (2) Prerequisite student teaching, previous or concurrent The role of the vocal music specialist in the implementation of the supervision and administration of the music programs in the elementary and secondary schools Open to graduate students by permission of instructor

MUED 499 Workshops, Clinics, Institutes (2-6) Innovative and experimental dimensions of music education will be offered to meet the needs of music teachers and music supervisors and to allow students to individualize their programs The maximum number credits that may be earned under this course symbol toward any degree is six semester hours, the symbol may be used two or more times until six semester hours have been reached

MUSC — Music

MUSC 100 Beginning Class Voice (2) Four hours per week A laboratory course involving a variety of voices and vocal problems Principles of correct breathing as applied to singing, fundamentals of tone production and diction Repertoire of folk songs and songs of the Classical and Romantic periods Development of students' voices

MUSC 102 Beginning Class Piano I (2) Four hours per week Functional piano training for beginners Development of techniques T for school and community playing Basic piano techniques, chord, arpeggio, and scale techniques, melody and song playing, simple accompaniments, improvisation for accompaniments and rhythms, sight reading and transposition, and playing by ear

MUSC 103 Beginning Class Piano II (2) Four hours per week Functional piano training for beginners Development of techniques useful for school and community playing Basic piano techniques, chord, arpeggio, and scale techniques, melody and song playing simple accompaniments, improvisation for accompaniments and rhythms, sight reading and transposition, and playing by ear MUSC 103 is a continuation of MUSC 102 elementary repertoire is begun

MUSC 104 Beginning Folk Guitar Class (2) Basic techniques of folk guitar Emphasis on performance of traditional and contemporary folk music literature

MUSC 106 Beginning Classical Guitar Class (2) Basic techniques of classical guitar Music reading skills and musical interpretation, excercises to develop technical competency

MUSC 110 Class Study of String Instruments (2) Open only to majors in music education (vocat option) Four laboratory hours per week Basic principles of string playing, and a survey of all string instruments

MUSC 111 Class Study of Wind and Percussion Instruments (2) Open only to majors in music education (vocal option) Four laboratory hours per week A survey of wind and percussion instruments with emphasis on ensemble training The student will acquire an adequate playing technique on one instrument and gain an understanding of the acoustical and construction principles of the others

MUSC 113 Class Study: Violin (2) Open only to majors in music education (instrumental option) Four laboratory hours per week A study of the violin with emphasis on ensemble training The student will acquire an adequate playing technique

MUSC 114 Class Study: Cello and Bass (2) Open only to majors in music education (instrumental option) Four laboratory hours per week A study of the instruments with emphasis on ensemble training The student will acquire an adequate playing technique

MUSC 116 Class Study: Clarinet (2) Open only to majors in music education (instrumental option) Four laboratory hours per week A study of the clarinet with emphasis on ensemble training The student will acquire an adequate playing technique

MUSC 117 Class Study: Flute, Oboe, Bassoon, and Saxophone (2) Open only to majors in music education (instrumental option) Four laboratory hours per week A study of the instruments with emphasis on ensemble training The student will acquire an adequate playing technique on two to four instruments, and an understanding of the acoustical and construction principles of the others.

MUSC 120 Class Study: Cornet (2) Open only to majors in music education (instrumental option) Four laboratory hours per week A study of the cornet with emphasis on ensemble training The student will acquire an adequate playing technique

MUSC 121 Class Study: Horn, Trombone, Euphonium, and Tuba (2) Open only to majors in music education (instrumental option) Four laboratory hours per week A study of the instruments with emphasis on ensemble training The student will acquire an adequate playing technique on two to four instruments, and an understanding of the acoustical and construction principles of the others

MUSC 122 Class Study: Percussion (2) Open only to majors in music education (instrumental option) Four laboratory hours per week A study of the instruments with emphasis on ensemble training The student will acquire an adequate playing technique on two to four instruments, and an understanding of the acoustical and construction principles of the others

MUSC 123 Movement for Singers (1) Systematic exercises, improvisations and dances in conjunction with artistic vocal expression Performance and critique of stage deportment, gestures and recital techniques

MUSC 126 Vocal Diction: English and Latin (1) Augmentation of private voice study Phonetics and diction for singers of English and Latin vocal literature

MUSC 127 Vocal Diction: Italian and Spanish (1) Augmentation of private voice study Phonetics and diction for singers of Italian and Spanish vocal literature

MUSC 128 Sight Reading For Pianists (2) A course to give the piano major an opportunity to develop proficiency in sight reading at the keyboard Repeatable to a maximum of 4 credits

MUSC 129 Ensemble (1) Three laboratory hours per week Rehearsal and performance of selected works for small ensembles of instruments, piano, or small vocal groups After two registrations in MUSC 129 the student will elect MUSC 229 for two additional semesters, and MUSC 329 thereafter

MUSC 130 Survey of Music Literature (3) Three lectures and one laboratory hour per week Open to all students except music and music education majors MUSC 130 and 131 may not both be taken for credit A study of the principles upon which music is based, and an introduction to the musical repertoires performed in America today

MUSC 135 Basic Notational Skills (2) Three hours per week An introductory course in fundamentals of music notation and the development of aural skills May not be used in fulfillment of degree requirements by majors in music

MUSC 140 Music Fundamentals I (3) An introductory theory course for the non-music major Notation, scales, intervals, triads, rhythm, form, and basic aural skills

MUSC 141 Music Fundamentals II (3) Prerequisite MUSC 140 or permission of instructor Continuation of MUSC 140 Introduction to counterpoint, contemporary idioms, improvisation and student compositions

MUSC 150 Theory of Music I (3) Prerequisite departmental audition and entrance examination Limited to music majors A study of basic concepts and skills in tonal melody and harmony through analysis and composition

MUSC 151 Theory of Music II (3) Prerequisite MUSC 150 with a minimum grade of C A continuation of MUSC 150, including study of more advanced harmonic techniques of the eighteenth century, such as modulation and chromatic harmonies Emphasis on sight singing ear training, analysis, and compositional skills

MUSC 155 Fundamentals For the Classroom Teacher (3) Open to students majoring in elementary education or childhood education, other students take MUSC 150 MUSC 150 and 155 may not both be counted for credit The fundamentals of music theory and practice, related to the needs of the classroom and kindergarten teacher, and organized in accord with the six-area concept of musical learning

MUSC 200 Intermediate Class Voice I (2) Fours hours per week Prerequisite MUSC 100 or equivalent vocal training Continuation of MUSC 100, with more advanced repertoire for solo voice and small ensembles A special section for music education majors will include the study of methods and materials for teaching class voice

MUSC 201 Intermediate Class Voice II (2) Fours hours per week Prerequisite MUSC 200 or equivalent vocal training Continuation of MUSC 200

MUSC 202 Intermediate Class Piano I (2) Four hours per week Prerequisite MUSC 103 or equivalent piano training Advanced keyboard techniques Continuation of skills introduced in MUSC 103 Transposition, modulation, and sight reading, methods of teaching functional piano

MUSC 203 Intermediate Class Piano II (2) Four hours per week Prerequisite MUSC 202 or equivalent piano training Advanced keyboard techniques Continuation of skills introduced in MUSC 202 Transposition, modulation, and sight reading, methods of teaching functional piano Development of style in playing accompaniments and in playing for community singing More advanced repertoire

MUSC 204 Intermediate Folk Guitar Class (2) Prerequisite MUSC 104 or equivalent Continuation of skills introduced in MUSC 104

MUSC 206 Intermediate Classical Guitar Class (2) Prerequisite MUSC 106 or permission of instructor Continuation of skills introduced in MUSC 106, including transcribing music for the guitar

MUSC 213 Advanced Class Strings (2) Open only to majors in music education (instrumental option) Four laboratory hours per week A study of the instruments with emphasis on ensemble training

MUSC 215 The Art of the Performer (3) A study of music as recreated and communicated by one or more performers through recital-lecture programs The soloist, the ensemble performer, the conductor, style, technique, and interpretation, programming, listener, audience, and media Presentations by Department of Music performance faculty, students, and when possible, visiting artists Open to non-music majors

MUSC 217 Class Composition I (2) Prerequisite MUSC 151 and permission of instructor Principles of musical composition and their application to the smaller forms Original writing in nineteenth and twentieth century musical idioms for various media

MUSC 218 Class Composition II (2) Prerequisite MUSC 217 and permission of instructor Continuation of MUSC 217 May be repeated for credit, but only one successful attempt may be applied towards baccalaureate degree requirements

MUSC 226 Vocal Diction: French (1) Augmentation of private voice study Phonetics and diction for singers of French vocal literature

MUSC 227 Vocal Diction: German (1) Augmentation of private study Phonetics and diction for singers of German vocal literature

MUSC 228 Accompanying For Pianist (2) Prerequisite MUSC 128 A course to give the piano major experience in dealing with the problems of accompanying at an intermediate stage of difficulty Guidance and instruction in class will be supplemented by extensive experience working as an accompanist in applied studios Repeatable to a maximum of 4 credits

MUSC 229 Ensemble (1) Three laboratory hours per week Rehearsal and performance of selected works for small ensembles of instruments, piano, or small vocal groups After two registrations in MUSC 129 the student will elect MUSC 229 for two additional semesters, and MUSC 329 thereafter

MUSC 230 History of Music I (3) Prerequisite MUSC 250 or equivalent A historical study of western music from Corelli through Beethoven

MUSC 248 Special Problems in Music (2-3) Prerequisite permission of instructor Designed to allow a student of theory or music history to pursue a specialized topic or project under the supervision of a faculty member Repeatable to a maximum of six credits

MUSC 250 Advanced Theory of Music I (4) Prerequisite MUSC 151 with a minimum grade of C A continuation of MUSC 151, with further study of chromatic and modulatory techniques of the nineteeth century Emphasis on sight singing ear training, analysis, and compositional skills

MUSC 251 Advanced Theory of Music II (4) Prerequisite MUSC 250 with a minimum of C A continuation of MUSC 250, concentrating on late nineteenth-century chromatic harmony and an introduction to twentieth-century melody and harmony Emphasis on sight singing, ear training, analysis, and compositional skills

MUSC 328 Chamber Music Performance For Pianists (2) A course to give the piano major experience in dealing with the problems of playing chamber music at a moderately difficult level Class instruction will center around actual rehearsal and performance situations and will be supplemented by further experience working in chamber ensemble in applied studios Repeatable to a maximum of 4 credits

MUSC 329 Ensemble (1) Three laboratory hours per week Rehearsal and performance of selected works for small ensembles of instruments, piano, or small vocal groups After two registrations in MUSC 129 the student will elect MUSC 229 for two additional semesters, and MUSC 329 thereafter

MUSC 330 History of Music II (3) Prerequisite MUSC 250 or equivalent A historical study of western music from the Romantic era to the present

MUSC 331 History of Music III (3) Prerequisites MUSC 230 AND 330 A historical study of western music from Antiquity through the Baroque, ending with a review of all periods of music history

MUSC 338 Special Topics in Music and Art (3) Variable topics as announced Repeatable to a maximum of six credits (Listed also as ARTH 338)

MUSC 339 Honors in Music (3) Prerequisite approval of the honors committee Corequisite concurrent enrollment in MUSC 349 The production of one or more recitals or lecture-recitals, one or more compositions, or one or more honors theses in addition to regular degree requirements Two semesters required Repeatable to a maximum of 6 credits

MUSC 340 Music Literature Survey I (3) Prerequisite MUSC 130 or equivalent Limited to non-music majors Masterpieces of the symphonic and operatic repertory including works selected from Bach, Mozart, Beethoven, Brahms, Wagner, Verdi, and Debussy

MUSC 341 Music Literature Survey II (3) Prerequisite MUSC 130 or equivalent Limited to non-music majors Specialized music repertory, including medieval, liturgical drama, Handel trio sonatas, Schubert Lieder, Bartok string quartets, electronic music

MUSC 345 Jazz Theory and Improvisation I (3) Prerequisite MUSC 251 or permission of the instructor Jazz theory, notational conventions, improvisation techniques, reading and analysis of music, and performance in small combo format

MUSC 346 Jazz Theory and Inprovisation II (3) Prerequisite MUSC 345 or permission of instructor Continuation of MUSC 345 including scoring and transcription

MUSC 349 Honors Seminar in Music (1) Corequisite concurrent enrollment in MUSC 339 Group discussion of projects undertaken in MUSC 339 Two semesters required Repeatable to a maximum of 2 credits

MUSC 355 Music in Recreation (3) Prerequisite MUSC 155 or equivalent An advanced course in music programs materials and skills for the program specialist involved with planning music activities for leisure and recreation in community and clinical settings

MUSC 358 Aural Musical Skills (2) Advanced skills in perceiving pitch, melody, rhythm harmony, texture, and timbre in a variety of media May be repeated to a maximum of 4 credits

MUSC 379 Opera Workshop (2) Ten hours per week Open to music and non-music majors (by audition) Operatic production and performance, performance techniques and coaching stage direction, set design costume design, and make-up Repertoire will include smaller operatic works, excerpts, or scenes Repeatable to a maximum of eight credits

MUSC 388 Music Internship (3) Prerequisite permission of department chairman Corequisite MUSC 389 Pre-professional field work in music Repeatable to a maximum of six credits

MUSC 389 Music Internship Analysis (1) Corequisite MUSC 388 Documentation and evaluation of field work experience Repeatable to a maximum of two credits

MUSC 400 Music Pedagogy (3) Conference course Prerequisite or corequisite MUSC 418 or a more advanced course in applied music A study of major pedagogical treatises in music, and an evaluation of pedagogical techniques, materials, and procedures

MUSC 415 Music Management (3) Prerequisite permission of department chairman Application of management concepts to music administration

MUSC 428 Repertoire Coaching of Vocal or Chamber Music (2) Prerequisite or corequisite MUSC 328 A course for piano students who wish to go further than the work offered in MUSC 128, 228 and 328 by becoming specialists in the areas of vocal coaching or chamber music coaching Elements of pedagogy conducting and responsible artistic decision-making for the entire musical production

MUSC 429 Opera Theater (2-3) Ten hours per week Open to music and non-music majors with consent of director Advanced techniques of operatic production, preparation, rehearsal, and performance of operatic works from both the traditional and contemporary repertory Repeatable to a maximum of twelve credits

MUSC 432 Music in World Cultures I (3) Prerequisite MUSC 130 or permission of instructor Asian musics from Japan to the Arab countries analyzed in terms of musical, social and aesthetic approaches

MUSC 433 Music in World Cultures II (3) Prerequisite MUSC 130 or permission of instructor Music of the Balkans, Africa, South and North America analyzed in terms of musical, social and aesthetic interrelationships

MUSC 436 Jazz: Then and Now (3) Major styles and influential artists of the past 75 years of jazz

MUSC 438 Area Studies in Ethnomusicology (3) Prerequisite MUSC 432 or 433 or equivalent Advanced study of musics in selected regions of the world Repeatable to a maximum of nine credits provided content is different

MUSC 439 Collegium Musicum (1) Prerequisite permission of the instructor Open to undergraduates and graduates, music majors and non-majors Procurement, edition, and performance of music not belonging to a standard repertory early music compositions for unusual performing media, works which demand reconstruction of their original circumstances of performance Outcome of a semester's work may be one or more performances for the public May be repeated for credit five times

MUSC 443 Solo Vocal Literature (3) Prerequisite MUSC 330, 331 or the equivalent The study of solo vocal literature from the Baroque Cantata to the Art Song of the present The Lied Melodie vocal chamber music, and the orchestral song are examined

MUSC 445 Survey of the Opera (3) Prerequisite MUSC 330, 331, or the equivalent A study of the music librettos and composers of the standard operas

MUSC 448 Special Topics in Music (2-6) Prerequisite permission of the instructor Repeatable to a maximum of six semester hours

MUSC 450 Musical Form (3) Prerequisite MUSC 251 A study of the principles of organization in music with emphasis on eighteenth and nineteenth century European music Reading and analysis of scores exemplifying the musical forms

MUSC 451 Analysis of Music (3) Prerequisite MUSC 450 or permission of instructor An advanced course in the analysis of tonal music Discussion of individual works with emphasis on their unique characteristics and on the relation of analysis to performance

MUSC 452 Keyboard Harmony (2) Prerequisite MUSC 251 Keyboard performance of musical score for vocal and instrumental ensembles and keyboard realization of basso continuo parts

MUSC 453 Class Study of Guitar and Recorder (2) Prerequisite consent of instructor or any four of the following MUSC 102 103 113 114 116 117 120, 121 202 203 Three hours per week Study and development of instrumental technique pedagogical practices and materials relating to group performance

MUSC 457 Electronic Music Composition (2) Prerequisite: MUSC 250 and permission of instructor. Theory and practice of electronic music, electronically-generated sound, and its modulation in the voltage controlled studio.

MUSC 460 Tonal Counterpoint I (2) Prerequisite: MUSC 251 or permission of instructor. A course in eighteenth century contrapuntal techniques, analysis and original composition of two-voice dances, preludes, and inventions.

MUSC 461 Tonal Counterpoint II (2) Prerequisite: MUSC 460. A continuation of MUSC 460. Analysis and original composition of larger works displaying imitation in more than two voices, including the chorale prelude and fugue.

MUSC 462 Modal Counterpoint (2) Prerequisite: MUSC 251 or the equivalent. An introduction to the contrapuntal techniques of the sixteenth century: the structure of the modes; composition of modal melodies; and contrapuntal writing for two, three and four voices.

MUSC 465 Canon and Fugue (3) Prerequisite: MUSC 461 or the equivalent. Composition and analysis of the canon and fugue in the styles of the eighteenth, nineteenth and twentieth centuries.

MUSC 466 Structural Counterpoint (3) Prerequisite: MUSC 461 or permission of the instructor. A study of counterpoint and its role in articulating large-scale tonal structures with emphasis on analysis and written exercises.

MUSC 467 Piano Pedagogy I (3) A study of major pedagogical treatises in music, and an evaluation of pedagogical techniques, materials, and procedures.

MUSC 468 Piano Pedagogy II (3) Prerequisite: MUSC 467. Application of the studies begun in MUSC 467 to the actual lesson situation. Evaluation of results. May be repeated once for credit.

MUSC 470 Harmonic and Contrapuntal Practices of the Twentieth Century (2) Prerequisite: MUSC 251 or equivalent. A theoretical and analytical study of twentieth century materials.

MUSC 471 Contemporary Compositional Techniques (2) Prerequisite: MUSC 470 or permission of instructor. Continuation of MUSC 470, with emphasis on the analysis of individual works written since 1945.

MUSC 480 Music in Antiquity and the Middle Ages (3) Survey of western music from Hellenic times to 1450.

MUSC 481 Music in the Renaissance (3) Survey of western music from 1450 to 1600.

MUSC 482 Music in the Baroque Era (3) Survey of western music from 1600 to 1750.

MUSC 483 Music in the Classic Era (3) Survey of western music from 1750 to 1820.

MUSC 484 Music in the Romantic Era (3) Survey of western music from 1820 to 1900.

MUSC 485 Music in the 20Th Century (3) Survey of western music from 1900 to the present.

MUSC 486 Orchestration I (2) Prerequisite: MUSC 251. A study of the ranges, musical functions and technical characteristics of the instruments and their color possibilities in various combinations. Practical experience in orchestrating for small and large ensembles.

MUSC 487 Orchestration II (2) Prerequisite: MUSC 486. A study of orchestration in the various historical periods, with emphasis upon stylistic writing projects.

MUSC 490 Conducting (2) Prerequisite: MUSC 251. Vocal and instrumental baton techniques.

MUSC 491 Conducting II (2) Prerequisite: MUSC 490 or the equivalent. Baton techniques applied to score reading, rehearsal techniques, tone production, style and interpretation.

MUSC 492 Keyboard Music I (3) The history and literature of harpsichord and solo piano music from its beginning to the romantic period. Emphasis is placed on those segments of repertoire which are encountered in performance and teaching situations at the present time.

MUSC 493 Keyboard Music II (3) Prerequisite: MUSC 492. The history and literature of harpsichord and solo piano music from the romantic period to the present. Emphasis is placed on those segments of repertoire which are encountered in performance and teaching situations at the present time.

MUSC 494 Survey of Theory (3) Prerequisite: MUSC 251. A study of the major contributions of music theorists from Greek antiquity through the twentieth century.

MUSC 495 Acoustics For Musicians (3) Prerequisites: MUSC 251 or the equivalent, and senior or graduate standing in music. The basic physics of music, acoustics of musical instruments and music theory, physiological acoustics, and musico-architectural acoustics.

MUSC 499 Independent Studies (2-3) Prerequisite: permission of instructor. Independent research on a topic chosen in consultation with the instructor which may culminate in a paper or appropriate project. May be repeated once for credit.

MUSP — Music Performance

Undergraduate Music Performance Courses are available in three series:

Minor Series: 2-credits each course. Prerequisite: permission of department chairperson. Limited to music majors studying a secondary instrument and to non-music majors. Each course in the series must be taken in sequence. The initial election for all new students, both freshman and transfer, is 102. Transfer students are evaluated for higher placement after one semester of study. One-half hour private lessen per week plus assigned independent practice.

MUSP 102, 103 Freshman Courses.

MUSP 202, 203 Sophomore Courses.

MUSP 302, 303 Junior Courses.

MUSP 402, 403 Senior Courses.

Principal Series: 2 or 4 credits each course. Prerequisites: departmental audition, entrance examination, and permission of department chairperson. Limited to majors in music programs other than performance and composition. Each course in the series must be taken in sequence. The initial election for all new students, both freshman and transfer, is 119. Transfer students are evaluated for higher placement after one semester of study. One-hour private lesson per week plus assigned independent practice. Courses 109, 208, and 409 may be repeated once for credit, but only one successful attempt in each course may be applied towards baccalaureate degree requirements.

MUSP 109, 110, Freshman Courses.

MUSP 207, 208 Sophomore Courses.

MUSP 305, 306 Junior Courses.

MUSP 409, 410 Senior Courses. Recital required in MUSP 410.

Major Series: 2 or 4 credits each course. Prerequisites: departmental audition, entrance examination, and permission of department chairperson. Limited to majors in performance and composition. Each course in the series must be taken in sequence. The initial election for all new students, both freshman and transfer, is 119. Transfer students are evaluated for higher placement after one semester of study. One-hour private lesson per week plus assigned independent practice. Courses 119, 218, and 419 may be repeated once for credit, but only one successful attempt in each course may be applied towards baccalaureate degree requirements.

MUSP 119, 120 Freshman Courses.

MUSP 217, 218 Sophomore Courses.

MUSP 315, 316 Junior Courses.

MUSP 419, 420 Senior Courses. Recital required in MUSP 420. Instrument designation; each student taking a music performance course must indicate the instrument chosen by adding a suffix to the proper course number, such as: MUSP 102A music performance--piano. A--piano, B--voice, C--violin, D--viola, E--cello, F--bass, G--flute, H--oboe, I--clarinet, J--bassoon, K--saxophone, L--horn; M--trumpet, N--trombone; O--tuba, P--euphenium, Q--percussion, R--organ, S--guitar, T--composition, U--world instruments; V--harp, W--electronic composition, X--hist inst - keyboard, Y -hist inst - strings, Z--hist inst - winds.

NRMT — Natural Resources Management

NRMT 314 Biology and Management of Finfish (4) Two hours of lecture and six hours of laboratory per week. Prerequisite: one year of biology or zoology. Formerly AGRI 314. Fundamentals of individual and population dynamics; theory and practice of sampling fish populations; management schemes.

NRMT 389 Internship (3) Prerequisite: permission of department. Repeatable to 6 credits. Formerly AGRI 389. Students are placed in work experiences related to their stated career goals for a minimum of eight hours a week for a semester. Each student must do an in-depth study in some portion of the work experience and produce a special project and report related to this study. A student work log is also required. An evaluation from the external supervisor of the project will be required.

NRMT 411 Biology and Management of Shellfish (4) Two hours of lecture and six hours of laboratory per week. Prerequisite: one year of biology or zoology. Formerly AGRI 411. Identification, biology, management, and culture of commercially important molluscs and crustacea. The shellfisheries of the world, with emphasis on those of the northwestern Atlantic Ocean and the Chesapeake Bay. Field trips.

NRMT 460 Principles of Wildlife Management (3) Two lectures per week. Three Saturday field trips are scheduled. Prerequisite: two semesters of laboratory biology. Ecological principles and requirements of wildlife as bases for management, and introduction to the scientific literature. Conflicts in wildlife management; government administration of wildlife resources; legislation, and history of the wildlife management profession.

NRMT 461 Urban Wildlife Management (3) Two lectures per week. Two Saturday field trips are scheduled. Ecology and management of wildlife in urban areas. For students in biological sciences, geography, landscape design, natural resources management, recreation and urban studies. Planning design, and wildlife conservation in landscape ecology. Public attitudes, preferences, and values; reviews of private conservation organizations.

NRMT 470 Natural Resources Management (4) Senior standing. For NRMT majors only. Field work, and independent research on watersheds. Intensive seminar on resource management planning and report preparation.

NRMT 487 Conservation of Natural Resources I (3) Formerly AEED 487. Designed primarily for teachers. Study of state's natural resources: soil, water, fisheries, wildlife, forests and minerals; natural resources problems and practices. Extensive field study. Concentration on subject matter. Taken concurrently with NRMT 497 in summer season.

NRMT 489 Field Experience (1-4) Prerequisite: permission of department. Repeatable to 6 credits. Formerly AEED 489. Planned field experience for both major and non-major students.

NRMT 497 Conservation of Natural Resources II (3) Formerly AEED 497. Designed primarily for teachers. Study of state's natural resources: soil, water, fisheries, wildlife, forests and minerals; natural resources problems and practices. Extensive field study. Methods of teaching conservation included. Taken concurrently with NRMT 487 in summer season.

NRMT 499 Special Problems (3) Prerequisite: permission of department. Repeatable to 6 credits if content differs.

NUSC — Nutritional Science

NUSC 402 Fundamentals of Nutrition (3) Prerequisite: CHEM 104, ANSC 212 and BCHM 261 recommended. A study of the fundamental role of all nutrients in the body including their digestion, absorption, and metabolism. Dietary requirements and nutritional deficiency syndromes of laboratory and farm animals and man.

NUSC 403 Applied Animal Nutrition (3) Two lectures and one laboratory period per week. Prerequisites: MATH 110, NUSC 402 or permission of instructor. A critical study of those factors which influence the nutritional requirements of ruminants, swine and poultry. Practical feeding methods and procedures used in formulation of economically efficient rations will be presented.

NUSC 425 International Nutrition (3) Prerequisite: course in basic nutrition. Nutritional status of world population and local, national, and international programs for improvement.

NUSC 450 Advanced Human Nutrition II (4) Three lectures and one laboratory. Prerequisites: NUTR 440 or permission of department. A critical study of physiological and metabolic influences on utilization of water soluble vitamins and minerals. Consideration of nutrition and the life cycle, with emphasis on current problems in human nutrition.

NUSC 460 Therapeutic Human Nutrition (3) Two lectures and one laboratory period per week. Prerequisites: NUTR 300 and NUTR 450. Modifications of the normal adequate diet to meet human nutritional needs in pathological conditions.

NUSC 463 Nutrition Laboratory (2) Prerequisite: ANSC 401/NUSC 402 or concurrent registration. Six hours of laboratory per week. Digestibility studies with ruminant and monogastric animals, proximate analysis of various food products, and feeding trials demonstrating classical nutritional deficiencies in laboratory animals.

NUTR — Nutrition

NUTR 100 Elements of Nutrition (3) Fundamentals of human nutrition. Nutrient requirements related to changing individual and family needs.

NUTR 200 Nutrition for Health Services (3) Two hours of lecture and two hours of laboratory per week. Prerequisites: CHEM 104 or CHEM 233, and ZOOL 201 or ZOOL 202 or ZOOL 211. Nutrition related to maintenance of normal health and prevention of disease, nutritional requirements for individuals in different stages of development, current concerns in nutrition for the professional in health services.

NUTR 315 Maternal, Infant and Child Nutrition (3) Prerequisite: NUTR 100 or NUTR 200. Nutritional needs of the mother, infant and child and the relation of nutrition to physical and mental growth. Intended primarily for non-majors.

NUTR 330 Nutritional Biochemistry (3) Prerequisites CHEM 104 or CHEM 233 or CHEM 235, NUTR 100 or NUTR 200. This course is designed to meet the needs of departmental majors in the area of nutritional biochemistry.

NUTR 335 History of Nutrition (3) Prerequisite: course in basic nutrition. The development of knowledge in nutrition, including the biographies of creative nutrition researchers and the nature of the discovery process. The use of hypotheses to focus exploration and the testing and evaluation of important hypotheses in nutrition.

NUTR 425 International Nutrition (3) Prerequisite: course in basic nutrition. Nutritional status of world populations, consequences of malnutrition on health and mental development, and local, national, and international programs for nutritional improvement.

NUTR 440 Advanced Human Nutrition I (4) Three hours of lecture and three hours of laboratory per week. Prerequisites: NUTR 330, and ZOOL 202, and NUTR 100 or permission of department. A critical study of physiological and metabolic influences on utilization of carbohydrates, lipids, protein and fat soluble vitamins, with particular emphasis on current problems in human nutrition.

NUTR 450 Advanced Human Nutrition II (4) Three hours of lecture and three hours of laboratory per week. Prerequisites: NUTR 440 or permission of department. A critical study of physiological and metabolic influences on utilization of water soluble vitamins and minerals. Consideration of nutrition and the life cycle, with emphasis on current problems in human nutrition.

NUTR 460 Therapeutic Human Nutrition (4) Three hours of lecture and two hours of laboratory per week. Prerequisites: NUTR 440 and NUTR 450. Modifications of the normal adequate diet to meet human nutritional needs in acute and chronic diseases and metabolic disorders.

NUTR 468 Practicum in Nutrition (1-6) Prerequisite: permission of department. Repeatable to 6 credits. Inservice training and practical experience in the application of the principles of normal and/or therapeutic nutrition in an approved community agency, clinical facility or nutrition research laboratory. Students are encouraged to see their practicum advisor before registering.

NUTR 470 Community Nutrition (3) Prerequisites: NUTR 440 or permission of department. A study of nutrition education principles and techniques for use with children and adults; program development, implementation, and evaluation; community nutrition programs and problems.

NUTR 475 Dynamics of Community Nutrition (3) Prerequisite: NUTR 470 or permission of department. The practice of community nutrition. Community assessment, nutrition program planning, implementation and evaluation, nutrition education and counseling, grantsmanship, and the legislative process.

NUTR 490 Special Problems in Nutrition (2-3) Prerequisite: NUTR 440 and permission of department. Individual selected problems in the area of human nutrition.

NUTR 498 Selected Topics (1-3) Prerequisite: permission of department. Repeatable to 6 credits if content differs. Selected current aspects of nutrition.

PERH — Physical Education, Recreation, and Health

PERH 488 Children's Health and Development Clinic (1-4) Prerequisite: permission of department. Repeatable to 4 credits. An opportunity to acquire training and experience in a therapeutically oriented physical education--recreation program for children referred by various education, special education, medical or psychiatric groups.

PHED — Physical Education

PHED Activities Program Courses: 1-3 credits per course.

PHED 100--114 Physical Education Activities - Men

PHED 115--127 Physical Education Activites - Women

PHED 130--177 Physical Education Activites - Coed

PHED 188 Adapted Physical Education - Coed

PHED Professional Program Courses:

PHED 180 Foundations of Physical Education (3) Introduction to the study of physical education with attention to the foundations, content and practices of human movement as the focus. The course involves lecture, discussion, and laboratory components to explore, describe, and increase understanding of physical education as it is practiced and studied.

PHED 181 Fundamentals of Movement (2) Introduction to the scientific foundations of human movement including factual knowledge and application of content areas such as human growth and development, anatomy, physiology, neurology, biomechanics and motor learning to fundamental movement skills.

PHED 182 Rhythmic Activities (2) Six hours of laboratory per week. Development of rhythmic sensitivity through analysis of rhythm and its application to movement skills in folk, square and social dance and teaching techniques for use in schools and recreational programs.

PHED 183 Movement Content for Elementary School Children (3) Participation in movement activities with a focus on educational dance, gymnastics and games. Observation and analysis of movement behavior in relation to specific aspects of movement. Examination of relationships among movement forms.

PHED 200 Gymnastics Skills Laboratory (2) Progressive techniques of teaching and practice of skills in gymnastics.

PHED 201 Archery Skills Laboratory (1) Progressive techniques of teaching and practice of skills in archery.

PHED 202 Badminton Skills Laboratory (1) Progressive techniques of teaching and practice of skills in badminton.

PHED 203 Baseball Skills Laboratory (1) Progressive techniques of teaching and practice of skills in baseball.

PHED 204 Basketball Skills Laboratory (1) Progressive techniques of teaching and practice of skills in basketball.

PHED 205 Bowling Skills Laboratory (1) Progressive techniques of teaching and practice of skills in bowling.

PHED 206 Golf Skills Laboratory (1) Progressive techniques of teaching and practice of skills in golf.

PHED 207 Fencing Skills Laboratory (1) Progressive techniques of teaching and practice of skills in fencing.

PHED 210 Field Games Skills Laboratory (1) Progressive techniques of teaching and practice of skills in field games such as flag football, soccer, speedball and speed-a-way.

PHED 211 Field Hockey Skills Laboratory (1) Progressive techniques of teaching and practice of skills in field hockey.

PHED 212 Football Skills Laboratory (1) Progressive techniques of teaching and practice of skills in football.

PHED 213 Lacrosse Skills Laboratory (1) Progressive techniques of teaching and practice of skills in lacrosse.

PHED 214 Soccer Skills Laboratory (1) Progressive techniques of teaching and practice of skills in soccer.

PHED 215 Softball Skills Laboratory (1) Progressive techniques of teaching and practice of skills in softball.

PHED 217 Tennis Skills Laboratory (1) Progressive techniques of teaching and practice of skills in tennis.

PHED 218 Laboratory in Teaching (1) Prerequisite: permission of department. Repeatable to 2 credits. The course is designed to prepare the student for the student teaching experience by assisting in a class.

PHED 220 Track and Field Skills Laboratory (2) Progressive techniques of teaching and practice of skills in track and field.

PHED 221 Volleyball Skills Laboratory (1) Progressive techniques of teaching and practice of skills in volleyball.

PHED 222 Weight Training Skills Laboratory (1) Progressive techniques of teaching and practice of skills in weight training.

PHED 223 Wrestling Skills Laboratory (1) Progressive techniques of teaching and practice of skills in wrestling.

PHED 224 Aerobics Skills Laboratory (1) Progressive techniques of teaching and practice of skills in aerobics.

PHED 250 Advanced Volleyball Skills Laboratory (2) Prerequisite: PHED 221. Progressive techniques of teaching, coaching and practice of skills in volleyball at the advanced level.

PHED 261 Development of Endurance and Strength Fitness (3) Two hours of laboratory per week. Two lectures. An appraisal of various components of physical fitness and of a prescription exercise program. The parameters of physical fitness and the exercises to improve these parameters.

PHED 287 Sport and American Society (3) Sport will be related to such social problems as delinquency, segregation, collective behavior and leisure, to social processes such as socialization, stratification, mobility and social control, and to those familiar social institutions: the family, the school, the church, the military, the economy, the polity, and the mass media.

PHED 289 Topical Investigations (1-6) Repeatable to 6 credits. Independent study by an individual student or a group of students in special areas of knowledge not covered by regularly scheduled courses.

PHED 293 History of Sport in America (3) The growth and development of sport in America. The transformation of sport within the perspective of American history including class, sport, professionalization, amateurism, and international involvement.

PHED 300 Kinesiology (4) Three hours of lecture and two hours of laboratory per week. Prerequisites: ZOOL 201 and ZOOL 202. The study of human movement and the physical and physiological principles upon which it depends. Body mechanics, posture, motor efficiency, sports, the performance of a typical individual and the influence of growth and development upon motor performance.

PHED 304 Advanced Basketball Skills Laboratory (2) Prerequisite: PHED 204 or equivalent. Progressive techniques of teaching and practice of skills in basketball at the advanced level.

PHED 306 Advanced Golf Skills Laboratory (2) Prerequisite: PHED 206 or equivalent. Progressive techniques of teaching and practice of skills in golf at the advanced level.

PHED 314 Methods in Physical Education (3) Application of educational philosophy and principles to class organization and techniques of teaching physical education.

PHED 316 Advanced Gymnastics Skills Laboratory (2) Prerequisites: PHED 200 and PHED 216. An analytical approach to teaching basic through advanced skills in gymnastics. Emphasis is placed on spotting, evaluating, and the solving of motor performance problems.

PHED 317 Advanced Tennis Skills Laboratory (2) Prerequisite: PHED 217. Progressive techniques of teaching and practice of skills in tennis at the advanced level.

PHED 333 Physical Activity for the Handicapped (3) Handicapped conditions. Federal and State regulations, implications for planning and implementing physical activity programs, evaluation strategies of assessing motor performance and the role of physical activity in educational programs for handicapped students.

PHED 334 Methods of Scuba Instruction (3) An advanced course in scuba diving with emphasis on the instructional methods of teaching scuba. Included are teaching methods, organization and administration, legal aspects of scuba instruction, open water rescue and emergency procedures, advanced diving physics and physiology. Basic scuba certification and verification of diving experience required.

PHED 335 Swimming Pool Management (2) Analysis of the position of the swimming pool manager. The systematic treatment of swimming pool water, swimming pool first aid, and laws pertaining to swimming pool operation. Qualifies the student for a pool operator's license in most Maryland counties.

PHED 340 Theory of Coaching Athletics (2) General theory and practice of coaching selected competitive sports found in secondary schools and community recreation programs.

PHED 341 Theory of Coaching Basketball (2) Philosophy, preparation for season, practice organization, scouting, film analysis, and strategies.

PHED 342 Theory of Coaching Baseball (2) Philosophy preparation for season, practice organization, scouting, film analysis, and strategies.

PHED 343 Theory of Coaching Football (2) Philosophy, preparation for season, practice organization, scouting, film analysis, and strategies.

PHED 344 Theory of Coaching Swimming (2) Philosophy preparation for season, practice organization, scouting, film analysis, and strategies.

PHED 345 Theory of Coaching Track and Field (2) Philosophy preparation for season, practice organization, scouting, film analysis, and strategies.

PHED 346 Theory of Coaching Wrestling (2) Philosophy preparation for season, practice organization, scouting, film analysis, and strategies.

PHED 350 The Psychology of Sports (3) An exploration of the personality factors including but not limited to motivation, agression and emotion as they affect sports participation and motor skill performance.

PHED 351 Contemporary Issues in American Sport (3) Prerequisite: PHED 287. Seminar/discussion of theoretical and practical issues in contemporary sport.

PHED 360 Physiology of Exercise (3) Two hours of lecture and two hours of laboratory per week. Prerequisites: ZOOL 201 and ZOOL 202 and permission of department. A study of the physiology of exercise including concepts of work, muscular contraction, energy transformation, metabolism, oxygen debt and nutrition and athletic performance. Emphasis on cardiovascular and respiratory function in relation to physical activity and training.

PHED 361 Weight Control Through Diet and Exercise (3) Lecture and laboratory. The basic principles of weight control are given and the students participate in diet and exercise programs.

PHED 362 Philosophy of Sport (3) Form and content of the philosophy of sport. The basis of knowledge in and about sport, the structure and theories of the discipline, the ontological and moral implications and dilemmas involving sport, and the interactions between philosophy and the scientific and humanistic aspects of sport.

PHED 370 Motor Development (3) Motor development across the life span. The developmental sequences of motor skills from birth to old age, neuromaturation of neuromuscular system, analysis of the underlying mechanisms of motor skill development and correlates of motor development

PHED 381 Prevention and Care of Athletic Injuries (3) Prerequisites ZOOL 201 and ZOOL 202. Theoretical and practical foundations of the prevention recognition, and treatment of athletic injuries. Physical conditioning and re conditioning, preventive taping, first aid, and various modalities are emphasized

PHED 385 Motor Learning and Skilled Performance (3) A study of the research dealing with motor learning and motor performance. Scientific methodology, individual differences, specificity, proprioceptive control of movement, motivation, timing, transfer, and retention

PHED 389 Topical Investigations (1-3) Repeatable to 6 credits. Independent study by an individual student or a group of students in special areas of knowledge not covered by regularly scheduled courses

PHED 390 Practicum in Teaching Physical Education (3) Prerequisite: PHED 314. Two lectures and two hours of laboratory per week, in the teaching of children in a physical education setting. Specific emphasis on curriculum development, lesson planning, progressions and analysis of teacher behavior

PHED 393 History of Ideas in American Sport (3) Prerequisite: PHED 293. The ideas, conflicts, and myths which influence American sport

PHED 398 Honors Seminar (1) One hour of discussion/ recitation per week. Prerequisite: participation in honors program. Repeatable to 3 credits. Guided discussion of research topics of current interest.

PHED 399 Honors Thesis (3) Prerequisites: PHED 398H, and candidacy for honors in physical education. Advisement will be on the individual basis. Thesis must be defended in the honors seminar

PHED 402 Biomechanics of Sport (3) Prerequisite: PHED 300. Mechanical determinants influencing sport techniques. A quantitative, scientific basis for sport analysis with emphasis on the application to numerous sport activities. Evaluation and quantification of the filmed performance of athletes

PHED 406 Perceptual-Motor Development in the Young Child (3) Analysis of perceptual-motor components, their progression, interrelationshi ps, developmental activities and evaluation. Study of the growth and other factors that influence perceptual-motor development in the young child

PHED 420 Physical Education For the Elementary School (3) Orientation of the general elementary teacher to physical education. Principles and practices in elementary physical education are discussed and a variety of appropriate activities are considered

PHED 421 Elementary School Physical Education: A Movement Approach (3) Prerequisite: PHED 183. An analysis of movement philosophy and content, focusing upon cognitive, psychomotor and affective developmental characteristics in relation to progression and planning of games, educational dance and educational gymnastics for elementary school age children.

PHED 450 Sport Psychology: Applications (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: PHED 350. Application of the principles of sport psychology to the competitive or recreational athlete, with an emphasis on the techniques that have been used with competitors to maximize skill acquisition and performance

PHED 451 Sport and the American Woman (3) The expanding perception of the woman's role in American society, etiology of sex differences, socialization of sex roles in America, development of 'masculinity' and 'feminity' in children through early play experiences, competition and women, personality of the female athlete, and personal motivations of female athletes and projected future for sport and the American

PHED 455 Scientific Bases of Athletic Conditioning (3) Prerequisite: PHED 360. An examination of physical fitness/athletic conditioning programs stressing the practical application of exercise physiology theory for enhancing athletic performance. Cardiovascular considerations, strength and power development, nutrition, speed muscular endurance, environmental considerations and ergogenic aids

PHED 461 Exercise and Body Composition (3) Prerequisite: PHED 360. Physiological concepts relating body composition factors to exercise and human performance. The scientific basis for the establishment and evaluation of conditioning programs where body composition may play an important role, such as weight control and athletics

PHED 462 Neural Basis of Human Movement (3) Prerequisites: (ZOOL 201, and ZOOL 202, and PHED 385) or permission of department. An introduction to the neural substrates which underlie postural and volitional movement. Neuroanatomical and neurophysiological basis of motor functioning, past and present conceptualizations of motor control and coordination, movement disorders, and maturation of the neuromuscular system

PHED 470 Seminar For Student Teachers (2) A seminar held concurrently with student teaching in physical education. An intensive examination of current problems and issues in teaching physical education

PHED 480 Measurement in Physical Education (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: MATH 110. A study of the principles and techniques of educational measurement as applied to teaching of physical education; study of the functions and techniques of measurement in the evaluation of student progress toward the objectives of physical education and in the evaluation of the effectiveness of teaching

PHED 481 Biophysical Aspects of Human Movement (3) Prerequisites: PHED 300, and PHED 360, and PHED 370, and PHED 385. Scientific principles and research techniques in the investigation of the biophysical basis of human movement

PHED 482 Socio-behavioral Aspects of Human Movement (3) Prerequisites: PHED 287, and PHED 293, and PHED 350. Derivation, formulation, and application of research in the socio-behavioral aspects of human movement

PHED 486 Politics and Economics of Organized Contemporary Sport (3) Prerequisite: PHED 287. Interdependence of sport, politics, and economics. The structure, organization, and uses of sport in contemporary societies

PHED 487 Sports in World Society (3) Prerequisite: SOCY 100. Impact and influence of sports are assessed from a sociopolitical frame of reference nationally and internationally

PHED 489 Field Laboratory Projects and Workshop (1-6) Repeatable to 6 credits. Workshops and research projects in special areas of knowledge not covered by regularly structured courses

PHED 490 Administration of Physical Education and Sport (3) Prerequisite: PHED 180 or PHED 287. Principles and functions of administration in physical education and sport. Administrative duties in relation to financing, budgeting, staffing, planning, organizing, directing, coordinating, evaluating, reporting, and discipline

PHED 491 The Curriculum in Physical Education (3) Curriculum sources, principles, and planning concepts, with emphasis on using valid criteria for the selection of content for physical education programs

PHED 492 History of the Sportswoman in American Organizations (3) Prerequisite: PHED 293. Women's involvement in and contributions to America s sporting culture, especially in the 19th and 20th Centuries until enactment of Title IX. The interactions among historical perceptions of women's roles, responsibilities, and potential and their sporting lives; the effects of role stereotyping and opportunities for and directions taken in developing sport organizations. Other issues affecting women's involvement in institutional sport

PHED 493 History and Philosophy of Sport and Physical Education (3) History and philosophical implications of sport and physical education through ancient, medieval, and contemporary periods in western civilization

PHED 494 History of Organized Sport in America 1870-1970 (3) Prerequisite: PHED 293. The development of organized amateur and professional sport in America since 1870. League and association formation and growth, promotion of and challenges to the organizations

PHED 496 Quantitative Methods (3) Statistical techniques most frequently used in research pertaining to physical education. Effort is made to provide the student with the necessary skills, and to acquaint him with the interpretations and applications of these techniques.

PHED 497 Independent Studies Seminar (3) Discussions of contemporary issues vital to the discipline; critiques of research in the student s area/areas of special interest; completion of a major project where the student will be asked to demonstrate the ability to carry out investigative processes in problem solving and critical writing under faculty direction

PHED 498 Special Topics in Physical Education (3) Prerequisite: permission of department. Repeatable when the subject matter is different. Topics of special interest in areas not covered by regularly scheduled courses

PHIL — Philosophy

PHIL 100 Introduction to Philosophy (3) An introduction to the literature, problems and methods of philosophy either through a study of some of the main figures in philosophic thought or through an examination of some of the central and recurring problems of philosophy

PHIL 110 Plato's Republic (3) Plato's Republic as a framework for examining philosophical issues pertaining to art, education, immortality, love, marriage, the mind, morality, the state, and the universe and our knowledge of it. The arguments Plato uses to support his views on these issues, his fusion of these views into a single comprehensive philosophy, and the influence of this philosophy on western thought and culture. Readings from other Platonic dialogues and from secondary material

PHIL 140 Contemporary Moral Issues (3) The uses of philosophical analysis in thinking clearly about such widely debated moral issues as abortion, euthanasia, homosexuality, pornography, reverse discrimination, the death penalty, business ethics, sexual equality, and economic justice

PHIL 170 Introduction to Logic (3) A general introduction to the discipline of logic. Traditional and modern deductive techniques, informal fallacies

PHIL 173 Logic and the English Language I (3) Basic techniques for analyzing deductive arguments. The uses of these techniques to illuminate the grammar and the logic of English sentences. The capacity of the English language to express logical distinctions. Exercises in analyzing the logical structure of published writings of varied style and content.

PHIL 174 Logic and the English Language II (3) Prerequisite: PHIL 173 or consent of instructor. Basic techniques of conceptual analysis and nondeductive reasoning examined against the capacity of the English language for exact expression. Exercises in critical analysis of published writings of varied style and content

PHIL 206 Chinese Philosophy: Social and Political Thought (3) An introductory survey of Confucian philosophy and of other Chinese social and political philosophy from ancient times to the present day. The Chou Dynasty (1122-222 BC) and the many schools of thought produced during that period. The reemergence of Confucian philosophy in the Sung Dynasty (960-1279 AD) and trace developments down to the contemporary period. Contemporary thought in the context of earlier Chinese traditions. Not available for credit for students who earned credit for PHIL 207 prior to Fall 1976

PHIL 207 Chinese Philosophy: Religious Thought (3) An introductory survey and critical examination of Taoist and Chinese Buddhist philosophical and religious ideas. The period from the rise of Taoist thought during the Chou Dynasty (C. 400 BC) to the decline of Buddhism in China (c 1000 AD).

PHIL 209 Philosophical Issues (3) An examination of selected philosophical issues of general interest. May be repeated to a maximum of 6 hours for credit when the issues dealt with are different

PHIL 233 Philosophy in Literature (3) Reading and philosophical criticism of fiction, poetry, and drama, dealing with issues of moral, religious, and metaphysical significance

PHIL 236 Philosophy of Religion (3) A philosophical study of some of the main problems of religious thought: the nature of religious experience, the justification of religious belief, the conflicting claims of religion and science, and the relation between religion and morality

PHIL 243 Philosophy of Rural Life (3) An examination of traditional and contemporary rural values and philosophies of life, with an emphasis on southern agrarian philosophies: Jefferson, Emerson, Thoreau, Populism, the Country Life Movement, the Vanderbilt Agrarians, and contemporary views

PHIL 245 Political and Social Philosophy I (3) A critical examination of such classical political theories as those of Plato, Hobbes, Locke, Rousseau, Mill, Marx, and such contemporary theories as those of Hayek, Rawls, and recent Marxist thinkers. Not open to students who have credit in PHIL 345.

PHIL 250 Philosophy of Science I (3) An introduction to the main issues in the philosophy of science, giving special attention to the ways scientific developments have influenced the philosophy of science and how philosophy of science has influenced scientific progress. Case studies of selected historical episodes in which science and philosophy have interacted significantly, focusing on the physical, biological, or social sciences. Students cannot receive credit for both HIST 200 and PHIL 250

PHIL 252 Moral Dilemmes in Science and Technology (3) The uses of philosophical analysis in thinking clearly about some of the moral dilemmas that have been created by modern science and technology, focusing on such issues as sociobiology, race and IQ, genetic engineering, techniques of behavior modification, nuclear power, experimentation with human subjects, ecology, and population control

PHIL 271 Symbolic Logic I (3) The formal analysis of deductive reasoning providing familiarity with techniques of formal deduction in propositional logic and quantification theory, as well as some knowledge of basic concepts of formal semantics (truth tables, models).

PHIL 308 Studies in Contemporary Philosophy (3) Prerequisite six hours in philosophy. Problems, issues, and points of view of current interest in philosophy. May be repeated for credit when the topics dealt with are different. Repeatable to a maximum of six hours.

PHIL 310 Ancient Philosophy (3) Prerequisite six credits in philosophy or classics. A study of the origins and development of philosophy and science in Ancient Greece, focusing on the pre-Socratics, Socrates, Plato, and Aristotle.

PHIL 320 Modern Philosophy (3) Prerequisite six credits in philosophy. A study of major philosophical issues of the 16th, 17th, and 18th centuries through an examination of such philosophers as Descartes, Newton, Hume, and Kant.

PHIL 326 Twentieth Century Analytic Philosophy (3) Prerequisite six credits in philosophy; PHIL 320 is recommended. A study of major issues in twentieth century analytic philosophy through an examination of such philosophers as Frege, Russell, Carnap, Moore, and Wittgenstein.

PHIL 328 Studies in the History of Philosophy (3) Prerequisite: six hours in philosophy. Problems, issues, and points of view in the history of philosophy. May be repeated for credit when the topics dealt with are different. Repeatable to a maximum of six hours.

PHIL 331 Philosophy of Art (3) Concepts central to thought about art, including the concept of the fine arts both in its historical development and in its present problematic situation.

PHIL 332 Philosophy of Beauty (3) Prerequisite two courses in philosophy, literature, or the arts. Philosophical theories, historical and contemporary, of beauty, sublimity, and other aesthetic qualities, of aesthetic experience, and of aesthetic judgment.

PHIL 334 Philosophy of Music (3) The nature, meaning, and purpose of music. Analysis of the concepts of creativity, form, expression, and representation as they relate to music. Theories of music listening and of musical evaluation. Readings from philosophers, composers, critics, and psychologists.

PHIL 340 Making Decisions (3) Prerequisite: Three credits in Philosophy. An examination of various approaches to decision making in personal, professional, and public life. Conflict resolution, the logic of decision, moral aspects of decision making, and standard biases in judgment.

PHIL 341 Introduction to Ethical Theory (3) A critical examination of classical and contemporary systems of ethics, such as those of Aristotle, Kant, Mill, and Rawls. Not open for credit to students who have credit in PHIL 142.

PHIL 342 Moral Problems in Medicine (3) Prerequisite: PHIL 100 or 140 or consent of instructor. A critical examination of the moral dimensions of decision-making in health related contexts. Readings are drawn from philosophical, medical, and other sources.

PHIL 343 Sexual Morality (3) A critical examination of practical moral issues bearing on sexual conduct, using the resources of moral and social philosophy.

PHIL 360 Philosophy of Language (3) Prerequisite: PHIL 170 or 173 or 371. An inquiry into the nature and function of language and other forms of symbolism.

PHIL 373 Analytical Writing (3) Prerequisite: PHIL 170 or 173 or 371 (PHIL 173 and 174 recommended). Review of techniques of deductive and nondeductive reasoning, and of conceptual analysis. The development of a prose style for writing clearly and critically about ideas.

PHIL 399 Honors Seminar (3) Open to honors students in philosophy and, by permission of the instructor, to honors students in other departments. Research in selected topics with group discussion. May be repeated for credit when the topics dealt with are different.

PHIL 408 Topics in Contemporary Philosophy (3) Prerequisite: PHIL 320. An intensive examination of contemporary problems and issues. Source material will be selected from recent books and articles. May be repeated for credit when the topics dealt with are different.

PHIL 412 The Philosophy of Plato (3) Prerequisite: six credits in philosophy. A critical study of selected dialogues.

PHIL 414 The Philosophy of Aristotle (3) Prerequisite: six credits in philosophy. A critical study of selected portions of Aristotle's writings.

PHIL 416 Medieval Philosophy (3) Prerequisite: six credits in philosophy. A study of philosophical thought from the fourth to the fourteenth centuries. Readings selected from Christian, Islamic, and Jewish thinkers.

PHIL 421 The Continental Rationalists (3) Prerequisite: six credits in philosophy. A critical study of selected writings of one or more of the continental rationalists.

PHIL 422 The British Empiricists (3) Prerequisite: six credits in philosophy. A critical study of selected writings on one or more of the British Empiricists.

PHIL 423 The Philosophy of Kant (3) Prerequisite: six credits in philosophy. A critical study of selected portions of Kant's writings.

PHIL 425 19th Century Philosophy (3) Prerequisite: six credits in philosophy. A study of philosophy in the nineteenth century through an examination of such figures as Hegel, Marx, Kierkegaard, Nietzsche, and Mill.

PHIL 428 Topics in the History of Philosophy (3) Prerequisites: PHIL 310 and 320, or consent of instructor. May be repeated for credit when the topics dealt with are different.

PHIL 431 Aesthetic Theory (3) Prerequisite: six credits in philosophy or permission of instructor. Study of the theory of the aesthetic as a mode of apprehending the world and of the theory of criticism, its conceptual tools and intellectual presuppositions.

PHIL 438 Topics in Philosophical Theology (3) Prerequisite: PHIL 236 or consent of instructor. An examination of a basic issue discussed in theological writings, with readings drawn from both classical and contemporary theologians and philosophers. May be repeated to a maximum of six credits when the topics are different.

PHIL 440 Contemporary Ethical Theory (3) Prerequisite: PHIL 142. Contemporary problems having to do with the meaning of the principal concepts of ethics and with the nature of moral reasoning.

PHIL 441 History of Ethics: Hobbes to the Present (3) Prerequisite: PHIL 140. The history of ethical thought from the seventeenth century to the present, including such philosophers as Hobbes, Butler, Hume, Kant, Bentham, Mill, Bradley, Sidgwick, Moore, and Stevenson.

PHIL 445 Political and Social Philosophy II (3) Prerequisite: PHIL 142 or 345. A study of the main issues encountered in the philosophical analysis and evaluation of social and political institutions.

PHIL 446 Law, Morality, and War (3) Prerequisite: GVPT 300 or 401 or PHIL 142 or consent of instructor. An exploration of fundamental moral and legal issues concerning war. Also offered as GVPT 403.

PHIL 447 Philosophy of Law (3) Prerequisite: one course in philosophy. Examination of fundamental concepts related to law, e.g., Legal system, law and morality, justice, legal reasoning, responsibility.

PHIL 450 Scientific Thought I (3) The development of science, its philosophical interpretations and implications, and views of its methods, from the ancients through Newton and Leibniz.

PHIL 451 Scientific Thought II (3) The development of science, its philosophical interpretations and implications and views of its methods, from the death of Newton to the early twentieth century.

PHIL 452 Philosophy of Physics (3) Prerequisite: three credits in philosophy or three credits in physics. Implications of 20th century physics for such problems as operationalism, the structure and purpose of scientific theories, the meaning of 'probability', the basis of geometrical knowledge, the nature of space and time, the Copenhagen interpretation of quantum mechanics, the nature and limits of measurement. Emphasis on the interaction between physics and philosophy.

PHIL 453 Philosophy of Science II (3) Prerequisite: PHIL 250 or an upper-level course in philosophy or a major in science. A comprehensive survey of developments in the main problems of the philosophy of science from logical positivism to the present. The nature of theories, models, laws, and counterfactuals; testing; inductive logic and confirmation theory; experimental methodology, measurement, explanation, concept formation; growth of scientific knowledge and scientific realism.

PHIL 454 Philosophy of Economics (3) Prerequisite: ECON 203 or consent of instructor. Conceptual, methodological, ethical, and ideological issues arising from or related to economic theory. Conceptual structure of economics, and logical relations among economic theories. The relations between economics and ethics and of the importance of ideology.

PHIL 455 Philosophy of the Social Sciences (3) Prerequisites: PHIL 250 or six hours in a social science or consent of the instructor. A consideration of philolophical issues arising in the social sciences with particular emphasis on issues of practical methodological concern to social scientists.

PHIL 456 Philosophy of Biology (3) Prerequisite: PHIL 250 or permission of the instructor. Questions about concepts, reasoning, explanation, etc. in biology and their relations to those of other areas of science. Case studies of selected aspects of the history of biology, especially in the twentieth century.

PHIL 457 Philosophy of History (3) An examination of the nature of historical knowledge and historical explanation.

PHIL 458 Topics in the Philosophy of Science (3) Prerequisite: PHIL 250 or consent of the instructor. When the topic for a given semester demands additional philosophical or scientific prerequisites may be required by the instructor. A detailed examination of a particular topic or problem in philosophy of science. Repeatable to a maximum of six credits when the content is different.

PHIL 461 Theory of Meaning (3) Prerequisite: six credits in philosophy. Theories about the meaning of linguistic expressions, including such topics as sense and reference, intensionality and necessity, and possible world semantics, through an examination of such writers as Mill, Frege, Wittgenstein, Quine, and Kripke.

PHIL 462 Theory of Knowledge (3) Prerequisite: six credits in philosophy. Some central topics in the theory of knowledge, such as perception, memeory, knowledge, and belief, skepticism, other minds, truth and the problems of induction.

PHIL 464 Metaphysics (3) Prerequisite: six credits in philosophy. A study of some central metaphysical concepts such as substance, identity, relations, causality, and time and of the nature of metaphysical thinking.

PHIL 465 Philosophy of Psychology (3) A study of epistemological, conceptual, and methodological assumptions of three major movements in 20th Century psychology: psychoanalysis, behaviorism, and cognitive psychology.

PHIL 466 Philosophy of Mind (3) Prerequisite: six credits in philosophy. An inquiry into the nature of mind through the analysis of such concepts as consciousness, thought, sensation, emotion, and desire. Consideration of mind-brain identity thesis.

PHIL 471 Symbolic Logic II (3) Prerequisite: PHIL 371 or consent of instructor. Axiomatic development of the propositional calculus and the first-order functional calculus, including the deduction theorem, independence of axioms, consistency, and completeness.

PHIL 472 Philosophy of Mathematics (3) Prerequisite: PHIL 371 or consent of instructor. A study of results in foundations of mathematics and of philosophical views of the nature of mathematics and of mathematical knowledge.

PHIL 474 Induction and Probability (3) Prerequisite: consent of instructor. A study of inferential forms, with emphasis on the logical structure underlying such inductive procedures as estimating and hypothesis-testing. Decision-theoretic rules relating to induction will be considered as well as classic theories of probability and induction.

PHIL 478 Topics in Symbolic Logic (3) Prerequisite: PHIL 471. May be repeated for credit when the topics dealt with are different.

PHIL 498 Topical Investigations (1-3)

PHYS — Physics

PHYS 101 Contemporery Physics (3) Prerequisite: high school algebra. For non-science students who are interested in the evolution of scientific thought and its present day significance. Historical philosophic experimental and theoretical aspects of physics are presented. Topics in mechanics, relativity, electricity and magnetism and nuclear physics are covered. Not open to students who have taken PHYS 111, 112.

PHYS 102 Physics of Music (3) Prerequisite: high school algebra. A study of the physical basis of sound, acoustical properties of sound, the human ear and voice, reproduction of sound, electronic music, acoustical properties of auditoriums, and other selected topics. Credit not applicable towards the minimum requirements for a major in physics and astronomy.

PHYS 103 Physics of Music Laboratory (1) One two-hour laboratory per week. Pre or co-requisite: PHYS 102. Optional laboratory to accompany PHYS 102. Laboratory experiments including the velocity of sound, sound quality and wave shape, traveling and standing waves, fourier synthesis and analysis, musical synthesizer, psychoacoustics, and audio equipment. Credit not applicable towards the minimum requirements for a major in physics and astronomy.

PHYS 106 Light, Perception, Photography, and Visual Phenomena (3) Intended for the general student, this course will cover topics in optics which require minimal use of mathematics. Principles of optics, lenses, cameras, lasers and holography, physics of the eye, color vision and various visual phenomena such as rainbows. Credit not applicable towards the minimum requirements for a major in physics and astronomy.

PHYS 107 Light, Perception, Photography and Visual Phenomena Laboratory (1) Pre- or co-requisite: PHYS 106. Optional laboratory to accompany PHYS 106. One two-hour laboratory session weekly. Laboratory experiments include geometrical optics (lenses, cameras, eye), optical instruments (telescope, binoculars), photography, perception, color phenomena, and wave phenemene. Credit not applicable towards the minimum requirements for a major in physics and astronomy.

PHYS 111 Physics in the Modern World (3) The first semester of a survey course in general physics emphasizing the role that physics plays in science, technology, and society today. The course is concept oriented and minimal use of mathematics is made. Intended for the general student, does not satisfy the requirements of the professional schools.

PHYS 112 Physics in the Modern World (3) The second semester of a survey course in general physics emphasizing the role that physics plays in science, technology, and society today. The course is concept oriented and minimal use of mathematics is made. Intended for the general student, does not satisfy the requirements of the professional school.

PHYS 114 Energy and the Environment (4) Three lectures and one two-hour laboratory per week. A one semester course on energy, its use and associated environmental problems. High school algebra recommended. A physical science course for students who wish an acquaintance with the methods and attitudes of physical science and their application to current problems in the generation and use of energy in our modern world. Topics include nuclear and solar power generation, and air, water and radiation pollution.

PHYS 117 Introduction to Physics (4) Three lectures and one two-hour laboratory per week. Prerequisite: qualification to enter MATH 110. Intended for students majoring in neither the physical nor biological sciences. A study of the development of some of the basic ideas of physical science.

PHYS 120 Physical Principles in Medical Technology (4) Three hours of lecture plus a two hour laboratory period per week. This course is designed to acquaint medical technology students with the physics they need to understand instruments and practices used in modern medicine. Energy, heat, electronics, and radiation are some topics covered. This course does not satisfy the undergraduate course requirements of future medical and dental students.

PHYS 121 Fundamentals of Physics I (4) Three hours of lecture, two hours of laboratory, and one hour of discussion/recitation per week. Prerequisite: knowledge of basic trigonometry or MATH 115. The first part of a two-semester course in general physics treating the fields of mechanics, heat, sound, electricity, magnetism, optics, and modern physics. Together with PHYS 122, this generally satisfies the minimum requirement of medical and dental schools.

PHYS 122 Fundamentals of Physics II (4) Three lectures, one recitation, and one two-hour laboratory period per week. Prerequisite: PHYS 121 or equivalent. A continuation of PHYS 121. Which together with it, generally satisfies the minimum requirement of medical and dental schools.

PHYS 141 Principles of Physics (4) The first of a two-semester series in general physics. Three lectures, one recitation, and one two-hour laboratory per week. Concurrent enrollment in MATH 141 or equivalent. The first semester covers the fields of mechanics, thermodynamics, and special relativity. This survey course will use calculus and is recommended for chemistry and zoology majors. It also satisfies the requirements of medical and dental schools. Credit will not be granted for PHYS 171 and PHYS 161 or PHYS 141 or former PHYS 191.

PHYS 142 Principles of Physics (4) A continuation of PHYS 141. The second semester covers the fields of waves, electricity and magnetism, optics, and modern physics. Credit will not be granted for PHYS 272 and PHYS 142 or former PHYS 192 or PHYS 262.

PHYS 161 General Physics: Mechanics and Particle Dynamics (3) Three lectures and one recitation per week. First semester of a three-semester calculus-based general physics course. Pre- or corequisite: MATH 141. Laws of motion, force, and energy; principles of mechanics, collisions, linear momentum, rotation, and gravitation. Credit will not be granted for PHYS 171 and PHYS 161 or PHYS 141 or former PHYS 191.

PHYS 171 Introductory Physics: Mechanics (3) Prerequisite: MATH 140 and a high school physics course or permission of the department. Corequisite: MATH 141. First semester of a three semester sequence for physics majors and those desiring a rigorous preparation in the physical sciences: kinematics, Newton's laws, energy and work, linear and angular momenta, rigid bodies, gravitation and planetary motion. Credit will not be granted for PHYS 171 and PHYS 161 or PHYS 141 or former PHYS 191.

PHYS 221 General Physics For Science Teachers I (4) Prerequisite: a high school physics course. Pre- or corequisite: MATH 140 or 220. Three lectures, one two-hour laboratory and one recitation per week. The first part of a two-semester sequence in physics, stressing physical insight, for prospective secondary school science and mathematics teachers.

PHYS 222 General Physics for Science Teachers II (4) Prerequisite: PHYS 221. Three lectures, one two-hour laboratory and one recitation per week. A continuation of PHYS 221.

PHYS 262 General Physics: Vibrations, Waves, Heat, Electricity and Magnetism (4) Three lectures, one recitation, and one three-hour laboratory per week. Second semester of a three-semester calculus-based general physics course. Prerequisite: PHYS 161. Vibrations, waves, fluids, heat, kinetic theory, and thermodynamics, electrostatics, circuits, and magnetism. PHYS 262A is the lab for this course, and must be registered for at the same time. Credit will not be granted for PHYS 272 and PHYS 142 or former PHYS 192 or PHYS 262.

PHYS 263 General Physics: Electrodynamics, Light, Relativity and Modern Physics (4) Third semester of a three-semester calculus-based general physics course. Three lectures, one recitation, and one three-hour laboratory session per week. Prerequisite: PHYS 262. Electrodynamics, Maxwell's equations, and electromagnetic waves, geometrical optics, interference and diffractions, special theory of relativity, and modern physics. PHYS 263A is the lab for this course, and must be registered for at the same time. Credit will not be granted for PHYS 273 and PHYS 263 or former PHYS 293. Credit will not be granted for PHYS 273 and PHYS 263 or former PHYS 293.

PHYS 272 Introductory Physics: Vibration, Waves, Heat, Electrostatics and Magnetostatics (3) Prerequisites: PHYS 171 and MATH 141. Corequisites: PHYS 275 and MATH 241 or 240 (it is preferable to take MATH 241 before 240 for this course). Second semester of a three semester sequence intended for physics majors and those desiring a rigorous preparation in the physical sciences: vibrations, waves, heat, kinetic theory, fluids, electric and magnetic fields, DC circuits. Credit will not be granted for PHYS 272 and PHYS 142 or former PHYS 192 or PHYS 262.

PHYS 273 Introductory Physics: Electrodynamics, Optics, Light, Relativity and Modern Physics (3) Prerequisites: PHYS 272, 275 and MATH 240 or 241. Corequisites: PHYS 276 and MATH 240 or 241. Third semester of a three-semester sequence intended for physics majors and those desiring a rigorous preparation in the physical sciences: electrodynamics, Maxwell's equations, electromagnetic waves, geometrical optics, interference, special relativity and modern physics. Credit will not be granted for PHYS 273 and PHYS 263 or former PHYS 293.

PHYS 275 Experimental Physics I: Mechanics and Thermodynamics (1) One two-three hour laboratory-lecture session each week. Prerequisite: PHYS 171 or 191. First course in the three semester introductory sequence pertaining to the methods and rationale of experimental physics. Intended for physics majors and science and engineering students who desire a more rigorous approach. Experiments chosen from the areas of classical mechanics, vibrations and waves, and thermodynamics. Credit will not be granted for more than two of the following three courses: PHYS 275, PHYS 195, PHYS 196.

PHYS 276 Experimental Physics II: Electricity and Magnetism (2) One four-hour laboratory-lecture session each week. Prerequisite: PHYS 272 or 293. Second course in the three semester introductory sequence pertaining to the methods and rationale of experimental physics. Intended for physics majors and science and engineering students who desire a more rigorous approach. Experiments chosen from the fields of electricity and magnetism including electrostatics, magnetostatics, magnetic induction, AC circuits. Credit will not be granted for both PHYS 276 and former PHYS 295.

PHYS 299 Special Problems in Physics (1-6) Prerequisite: consent of department. Research or special study to complement courses taken elsewhere which are not fully equivalent to those in departmental requirements. Credit according to work done. May be taken no more than twice. Maximum of eight credits applicable to B.S. degree program.

PHYS 301 Intermediate Theoretical Physics (3) Prerequisite: PHYS 142 and MATH 241. Students interested should seek advice of department before enrolling. Intended for those not yet prepared for PHYS 410. Selected topics in mechanics, electricity and magnetism.

PHYS 305 Physics Shop Techniques (1) One three-hour laboratory per week. Prerequisite: PHYS 395 or consent of instructor. Machine tools, design and construction of laboratory equipment.

PHYS 318 Topics in Contemporary Physics (3) Prerequisite: PHYS 122, PHYS 112 or consent of the instructor. A survey of topics of current research and public interest. Intended for the non-physics or non-science major. Topics covered will include lasers, quantum liquids, cosmology, elementary particles and geophysics.

PHYS 375 Experimental Physics III: Electromagnetic Waves, Optics and Modern Physics (2) One four-hour laboratory-lecture session per week. Prerequisite: PHYS 273 or 294. Third course in the three-semester introductory sequence pertaining to the methods and rationale of experimental physics. Intended for physics majors and science and engineering students who desire a more rigorous approach. Experiments chosen from the areas of electromagnetic waves, optics and modern physics. Credit will not be granted for both PHYS 375 and former PHYS 296.

PHYS 389 Undergraduate Thesis Reseerch (1-6) Prerequisite: consent of advisor. Independent directed research and study on a topic selected by the student in consultation with his advisor. Final written thesis and oral defense will be expected. Enrollment limited to undergraduate physics majors. May be repeated to a maximum of six credits.

PHYS 395 Advanced Experiments (3) Prerequisite: PHYS 375. Advanced laboratory techniques. Selected experiments from many fields of modern physics. Emphasis on self-study of the phenomena, data analysis, and presentation in report form.

PHYS 398 Independent Studies Seminar (1-16) Credit according to work done. Enrollment is limited to students admitted to the independent studies program in physics.

PHYS 399 Special Problems in Physics (1-3) Two hours laboratory work a week for each credit hour. One to three credits may be taken concurrently each semester. (Will be given with sufficient demand.) Prerequisite: PHYS 395 and consent of advisor. Selected advanced experiments.

PHYS 406 Optics (3) Prerequisites: [PHYS 263 or PHYS 273 or PHYS 301]; and MATH 240. Geometrical optics, optical instruments, wave motion, interference and diffraction, and other phenomena in physical optics.

PHYS 407 Sound (3) Prerequisite: PHYS 142 or PHYS 263 or PHYS 273. Pre- or corequisite: MATH 246. Basic concepts of sound production and its applications.

PHYS 410 Elements of Theoretical Physics: Mechanics (4) Prerequisites: [PHYS 263 or PHYS 273 or PHYS 301]; and MATH 241. Corequisite: MATH 240. Theoretical foundations of mechanics with extensive application of the methods. Various mathematical tools of theoretical physics.

PHYS 411 Elements of Theoretical Physics: Electricity and Magnetism (4) Prerequisites: [PHYS 263 or PHYS 273 or PHYS 301]; and MATH 240; and MATH 241. Foundations of electromagnetic theory, with extensive applications of the methods. Thorough treatment of wave properties of solutions of Maxwell's equations.

PHYS 412 Kinetic Theory of Gases (3) Prerequisites: PHYS 301 or PHYS 410, and MATH 240. Dynamics of gas particles, Maxwell-Boltzmann distribution, diffusion, Brownian motion, transport.

PHYS 414 Introduction to Thermodynamics and Statistical Mechanics (3) Prerequisites: [PHYS 263 or PHYS 273 or PHYS 301], and MATH 240. Introduction to basic concepts in thermodynamics and statistical mechanics.

PHYS 420 Principles of Modern Physics (3) Prerequisites: [PHYS 263 or PHYS 273 or PHYS 301]; and MATH 241. A survey of atomic and nuclear phenomena and the main trends in modern physics. Appropriate for students in engineering and other physical sciences. Credit will not be granted for both PHYS 420 and PHYS 421.

PHYS 421 Introduction to Modern Physics (3) Prerequisites: [PHYS 263 or PHYS 273 or PHYS 301] and MATH 241 , including some knowledge of ordinary differential equations. Special relativity and origins of the quantum theory. Development of wave mechanics including angular momentum and the hydrogen spectrum. Credit will not be granted for both PHYS 420 and PHYS 421.

PHYS 422 Modern Physics (4) Prerequisite: PHYS 421. Use of quantum mechanics in a discussion of a variety of physical phenomena and systems, including atomic spectra, radioactivity, solid state phenomena, and the properties of elementary particles.

PHYS 423 Elementary Quantum Physics (3) Prerequisites: PHYS 420 or 422, MATH 240 and 246, and a level of mathematical sophistication equivalent to that of a student who has taken PHYS 410 and 411, or ENEE 380 and 381. A rigorous presentation the quantum theory, including the concepts of operators, measurement and angular momentum. The application of these concepts together with the Schroedinger equation to some basic problems in atomic and molecular physics.

PHYS 429 Atomic and Nuclear Physics Laboratory (3) PHYS 395 and consent of instructor Classical experiments in atomic physics and more sophisticated experiments in current techniques in nuclear physics

PHYS 431 Properties of Matter (3) Prerequisites PHYS 301, or [PHYS 410 and PHYS 411], and [PHYS 420 or PHYS 421] Introduction to solid state physics Electro magnetic, thermal, and elastic properties of metals, semiconductors, insulators and superconductors

PHYS 441 Nuclear Physics (3) Prerequisites PHYS 301, or [PHYS 410 and PHYS 411]; and [PHYS 420 or PHYS 421] An introduction to nuclear physics at the pre-quantum-mech anics level Properties of nuclei, radioactivity; nuclear systematics; nuclear moment, the Shell model, interaction of charged particles and Gamma rays with matter, nuclear detectors; accelerators, nuclear reactions, Beta decay, high energy phenomena

PHYS 443 Neutron Reactor Physics (3) Prerequisite PHYS 420 or PHYS 421 or consent of instructor Various related topics in neutron reactor physics

PHYS 451 Introduction to Elementary Particles (3) Prerequisite PHYS 422 or consent of instructor Properties of elementary particles, production and detection of particles, relativistic kinematics, invariance principles and conservation laws

PHYS 461 Introduction to Fluid Dynamics (3) Prerequisites: PHYS 301 or PHYS 410; and MATH 240. Kinematics of fluid flow, properties of incompressible fluids, complex variable methods of analysis, wave motions.

PHYS 463 Introduction to Plasma Physics (3) Prerequisites PHYS 301, or [PHYS 410 and PHYS 411], or [ENES 221 and ENEE 380]. Students without the electricity and magnetism prerequisite, but having a familiarity with Maxwell's equations, should check with the instructor. Orbit theory, magneto-hydrodynamics, plasma heating and stability, waves and transport processes

PHYS 465 Modern Optics (3) Prerequisites PHYS 410, and PHYS 411, and PHYS 420 or PHYS 421 Designed for students with a background in fundamental optics Topics in modern optics such as coherence, holography, principles of laser action, electron optics, and non-linear optics

PHYS 471 Introduction to Atmospheric and Space Physics (3) Prerequisites PHYS 301, or [PHYS 410 and PHYS 411], and [PHYS 420 or PHYS 421] Motions of charged particles in magnetic fields, aspects of plasma physics related to cosmic rays and radiation belts, atomic phenomena in the atmosphere, thermodynamics and dynamics of the atmosphere

PHYS 483 Biophysics and Theoretical Biology (3) Prerequisite consent of the intructor Designed for advanced and mature students who may have only minimal knowledge of biological processes but are well grounded in physics Areas in bioscience where physics, biophysical chemistry, and mathematical analysis fuse to provide definition for biologic statics and dynamics

PHYS 485 Electronic Circuits (4) Two hours of lecture and four hours of laboratory per week Prerequisite PHYS 395, Corequisite PHYS 301 or PHYS 411 Theory and application to experimental physics of modern semiconductor analog and digital circuits Emphasis on understanding passive and active elements in practical circuits Topics span the range from simple transistor circuits to microcomputers

PHYS 487 Particle Accelerators, Physical and Engineering Principles (3) Prerequisites PHYS 410, and PHYS 411 and PHYS 420 or PHYS 421 Also offered as ENEE 487 Sources of charged particles, methods of acceleration and focusing of electron and ion beams in electromagnetic fields; basic theory, design, and engineering principles of particle accelerators

PHYS 490 History of Modern Physics (3) Prerequisite PHYS 420 or 421 or equivalent Primarily for senior physics majors and first year graduate students A survey of major discoveries and trends in 20th century physics, including the relations of physics to other sciences, philosophy of science technology and society

PHYS 499 Special Problems in Physics (1-16) Prerequisite major in physics and consent of advisor Research or special study Credit according to work done

PORT — Portuguese

PORT 101 Elementary Portuguese (4) Four recitations per week and one optional laboratory hour Introduction to basic structures, with emphasis upon audio-lingual skills Leads to 102

PORT 102 Elementary Portuguese (4) Completion of basic structures with increasing emphasis upon reading skill, reinforced by discussion and composition Four recitations per week and one optional laboratory hour

PORT 121 Accelerated Portuguese (3) Limited to students who have reached the 300 level or equivalent in Spanish and wish to acquire a reading knowledge of Portuguese in one semester Normally leads to PORT 221 Cannot be used to satisfy the arts and humanities language requirement

PORT 203 Intermediate Portuguese (4) Four recitations per week and one optional laboratory hour Extensive reading, discussion and composition

PORT 205 Intermediate Conversation (3) Prerequisite PORT 203 or consent of instructor Development of oral skills in Portuguese

PORT 221 Introduction to Brazilian Literature (3) Prerequisite PORT 104 Reading of literary texts, discussion and brief written reports Conducted in Portuguese

PORT 399 Independent Study in Portuguese (1-3) Prerequisite permission of instructor Specific readings in literature under the supervision of a faculty member of the department Repeatable to a maximum of three credits

PORT 478 Themas and Movements of Luso-Brazilian Literature in Translation (3) A study of specific themes and movements in Luso-Brazilian literature, as announced Designed for students for whom the literatures would be inaccessible in Portuguese Repeatable to a maximum of six credits

PSYC — Psychology

PSYC 100 Introduction to Psychology (3) A basic introductory course, intended to bring the student into contact with the major problems confronting psychology and the more important attempts at their solution

PSYC 200 Statistical Methods in Psychology (3) Prerequisite PSYC 100 and MATH 111 or 140 or 220 A basic introduction to quantitative methods used in psychological research

PSYC 201 Intermediate Psychology (Honors) (3) Usually taken during sophomore year Prerequisite PSYC 100H or permission of instructor The course content will stress the interrelations among data derived from the fields of human development, cognition, perception, measurement and social processes

PSYC 206 Developmental Biopsychology (3) Prerequisite PSYC 100 Biological basic of behavioral development in relation to genetic, constitutional, anatomical, physiological, and environmental factors Emphasis upon both phylogenetic and ontogenetic research findings in biological psychology

PSYC 221 Social Psychology (3) Prerequisite PSYC 100 The influence of social factors on the individual and interpersonal behavior Includes topics such as conformity, attitude change, person perception, interpersonal attraction and group behavior

PSYC 235 Psychology of Adjustment (3) Prerequisite PSYC 100 Theory and research on the psychology of personal adjustment in everyday life, with an emphasis on self-concept, emotions, self-control, interpersonal relations, and stress

PSYC 301 Biological Basis of Behavior (3) Prerequisite PSYC 100 The experimental analysis of the behavior of humans and animals from the point of view of the biological mechanisms of behavior Topics such as genetic determiners and physiological mechanisms, and basic principles of conditioning and learning

PSYC 309 Special Topics in Psychology (3) Prerequisite PSYC 100 Topics of current interest which represent extensions of or additions to topics covered in more general topical courses Offered on a seminar basis Repeatable to a maximum of six credits

PSYC 310 Perception (3) Prerequisite PSYC 100 or consent of the instructor A survey of phenomena and theories of perception including psychological, anatomical physiological, and environmental factors important in determining how we perceive the world Historical background will be examined as well as contemporary research No credit for students who have completed PSYC 410

PSYC 330 Child Psychopathology (3) Prerequisites PSYC 100 and 355 or equivalent Etiology, diagnosis, prevention and treatment of emotional disorders of childhood and adolescence

PSYC 332 Psychology of Human Sexuality (3) Prerequisite PSYC 100 A survey of historical and contemporary psychological views on a wide variety of sexual behaviors theory and research bearing on the relationship between life span psychological development psychological functioning, interpersonal processes and sexual behaviors political and social issues involved in current sexual norms and practices

PSYC 334 Psychology of Interpersonal Relationships (3) Prerequisite PSYC 100 Research, theory and their practical applications pertaining to the development maintenance and dissolution of human relationships Processes critical to successful relating (e.g. communication bargaining conflict relations), and issues associated with troubled dyadic relations with equal partners (e.g. jealousy spouse abuse divorce)

PSYC 336 Psychology of Women (3) Prerequisite PSYC 100 A survey of the biological, life-span development, socialization, personality, mental health factors and special problems of women

PSYC 337 Introduction to Community Psychology (3) Prerequisites PSYC 100 Survey and critical examination of environmental factors associated with variations in individual functioning Effects of social process and social structure in community life on individual mental health theoretical models in community psychology Additional topics within community psychology

PSYC 341 Introduction to Memory and Cognition (3) Prerequisite PSYC 100 An introduction to the basic models, methods of research and findings in memory problem-solving, and language and their applications

PSYC 353 Adult Psychopathology (3) Prerequisite PSYC 100 The nature, diagnosis etiology and treatment of mental disorders among adults

PSYC 354 Cross-Cultural Psychology (3) Prerequisite six credits in psychology or consent of the instructor Cultural components in theory and research in personality, social and community psychology Interplay of individual ethnic and cultural factors in psychosocial growth and well being, cross-cultural and cross-ethnic communication, and counseling and psychotherapeutic interactions

PSYC 355 Child Psychology (3) Prerequisite PSCY 100 Survey of research and theory of psychological development from conception through childhood, stressing physiological conceptual and behavioral changes and the social and biological context in which individuals develop Not open for credit to students who have already completed PSYC 333 or 433

PSYC 356 Psychology of Adolescence (3) Prerequisite PSYC 100, 355, or permission of the instructor A description of adolescent development based on research and theory interrelating psychological, intellectual, and social changes during the teen years and the systems dealing with those changes

PSYC 357 Psychology of Adulthood and Aging (3) Prerequisite PSYC 100 Theory research and implications of developmental stability and change in psysiological intellectual and interpersonal functioning in the social context from early adulthood through the aging years

PSYC 361 Survey of Industrial and Organizational Psychology (3) Prerequisite PSYC 100 A general survey of the field of industrial organizational psychology including such topics as organizational entry (recruitment, selection training, socialization), organizational psychology (motivation, leadership, job attitudes), and productivity in the work place (performance appraisal, absenteeism, turnover) The role that the larger environment plays in influencing work behaviors and work attitudes

PSYC 400 Experimental Psychology: Learning and Motivation (4) Two lectures and four one-hour laboratory periods per week Prerequisites PSYC 200 or a course in statistics from an approved departmental list completion of the departmentally required English, math and science supporting course sequence, consent of the department The experimental analysis of behavior with emphasis on conditioning, learning and motivational processes Experiments on the behavior of animals

PSYC 401 Advanced Laboratory in the Experimental Analysis of Behavior (3) Prerequisite PSYC 400 An intensified extension of the principles and techniques demonstrated in the laboratory of PSYC 400 Emphasis on complex schedules of reinforcement and experimental designs using repeated measures

PSYC 402 Physiological Psychology (3) Prerequisite PSYC 206 or 301 An introduction to research on the physiological basis of human behavior including considerations of sensory phenomena motor coordination emotion, drives, and the neurological basis of learning

PSYC 403 Animal Behavior (3) Prerequisite PSYC 206 or 301 A study of animal behavior including considerations of social interactions, learning sensory processes motivation, and experimental methods with a major emphasis on mammals

PSYC 404 Introduction to Behavioral Pharmacology (3) Prerequisite PSYC 206 or 301 or 400 or a course in zoology The basic findings and theoretical viewpoints on the interaction of drugs and behavior Introduction to basic principles of pharmacology the effects of drugs on various behavior experimental analysis of drug dependence and abuse, and neuropharmacology and behavior

PSYC 405 Applied Behavior Analysis (3) Prerequisite PSYC 301 Theoretical and research literature in the application of operant and respondent conditioning principles to human behavior Approaches to behavior problems in school, home and professional settings

PSYC 410 Experimental Psychology: Sensory Processes I (4) Three hours of lecture and two hours of laboratory per week Prerequisites PSYC 200 and completion of the English, math and science supporting course sequence and permission of department A systematic survey of the content models and methodology of sensory and perceptual research A student who has completed PSYC 310 must have permission of the instructor in order to register for PSYC 410

PSYC 412 Experimental Psychology: Sensory Processes II (4) Two lectures and four hours of laboratory exercise and research per week Prerequisite PSYC 410 or consent of instructor Primarily for psychology majors and majors in biological sciences with a special interest in sensory processes Lectures and laboratory exercises will emphasize contemporary problems in sensory process research Sufficient latitude will be provided so the exceptional student may conduct original research based on findings reported in the current literature

PSYC 415 History of Psychology (3) Prerequisite twelve credits in psychology or permission of the instructor The origins of psychology in philosophy and biology, and the development of psychology as a science in the nineteenth and twentieth centuries Consideration of current theoretical perspectives and experiments in relation to the enduring problems of psychology, and of the role of culture, science, and technology in the development of psychological ideas

PSYC 420 Experimental Psychology: Social Processes I (4) Two lectures and four hours of laboratory exercise and demonstration per week Prerequisites PSYC 200 or a statistics course from an approved departmental list, PSYC 221, completion of the English, math and science supporting course sequence, consent of the department A laboratory course to provide a basic understanding of experimental method in social psychology and experience in conducting research on social processes

PSYC 421 Experimental Psychology: Social Processes II (4) Prerequisite PSYC 420 Two hours of lecture and four hours of laboratory per week An advanced laboratory course which provides intensive training in experimental work in social psychology and the opportunity to design and carry out original research on social processes

PSYC 423 Advanced Social Psychology (3) Prerequisite PSYC 420 or permission of the instructor A systematic review of research and points of view in regard to major problems in the field of social psychology

PSYC 424 Communication and Persuasion (3) Prerequisite PSYC 221 or equivalent The effect of social communication upon behavior and attitudes Theory and research concerning attitude change and social influence

PSYC 432 Introduction to Counseling Psychology (3) Prerequisite nine hours in psychology A survey and critical analysis of research and intervention strategies developed and used by counseling psychologists Examination of both historical and current trends in content and methodology

PSYC 435 Personality Theories (3) Prerequisites PSYC 100; PSYC 200 or its equivalent Major theories of personality and research methods and findings relevant to those theories

PSYC 436 Introduction to Clinical Psychology (3) Prerequisites PSYC 100 A survey and critical analysis of clinical psychology, with particular emphasis on current developments and trends Students will be expected to conduct individual projects with a substantial amount of direct supervision

PSYC 440 Experimental Psychology: Cognitive Processes (4) Three lectures and one two-hour laboratory per week Prerequisite PSYC 200 or a statistics course from an approved departmental list, and completion of the departmentally required English, math and science supporting course sequence, consent of the department A laboratory course to provide a systematic survey of the content, models, and methods in cognitive psychology with an emphasis on auditory and visual pattern recognition, information processing, attention, memory, learning, problem solving, and language

PSYC 442 Psychology of Language (3) Prerequisite PSYC 100, 200 and either 341 or 440 or consent of the instructor Introductory survey of topics in psycholinguistic research, theory and methodology Major emphasis on the contribution of linguistic theory to the psychological study of language behavior and cognition Linguistic theory, biological bases of language, and speech, grammars, phonetics and phonological performance, speech perception and production, psychological studies of syntax and semantics, language and cognitive development, language comprehension and thought, etc

PSYC 443 Thinking and Problem Solving (3) Prerequisites PSYC 100, 200 and either 341 or 440 or consent of the instructor Survey of topics in the psychology of thinking and problem solving The historical development, current theory and data, and research methods in problem solving Formal problem solving theory and computer models of thinking and human problem behavior The uses of strategies to improve students' own thinking processes and problem solving behavior

PSYC 444 Cognitive Structure in Perception (3) Prerequisites PSYC 100, and 200 and either 341 or 440 or consent of the instructor Perception as an information extraction and pattern recognition process Complex form and space perception and pattern recognition of speech Review of early studies of form and pattern perception which support information processing state or cascade models of perceptual capacities, studies on development and the roles of learning and attention

PSYC 451 Principles of Psychological Testing (4) Three lectures and one two-hour laboratory period per week Prerequisite PSYC 200 or equivalent A survey of the basic concepts and theories of psychological measurement illustrated through demonstration of principal approaches to psychological testing

PSYC 452 Psychology of Individual Differences (3) Prerequisite PSYC 200 Problems theories and researches related to psychological differences among individuals and groups.

PSYC 453 Mathematical Psychology (3) Prerequisite PSYC 200 or equivalent, and consent of instructor A survey of mathematical formulations in psychology, including measurement and scaling models, statistical and psychometric models, and elementary mathematical representations of psychological processes in learning choice, psychophysics, and social behavior

PSYC 455 Life-Span Cognitive Development (3) Prerequisite PSYC 355 or PSYC 341 or PSYC 440 or equivalent Theory and research in cognition from a life-span developmental perspective Topics include memory, reasoning, attention, spatial, cognition and conceptual organization and discussions of implications of current research for a variety of educational interventions

PSYC 456 Research Methods in Developmental Psychology (3) Prerequisites: PSYC 200 and either 355, 356, or 357 A presentation of major research designs used in developmental psychology and of the methodology used in developmental research, such as observational research, program evaluation and laboratory experimentation

PSYC 457 Cultural Context of Psychological Development (3) Prerequisites PSYC 100, and either 355, 356 or 357, or permission of instructor An examination of whether important differences or similarities exist among and within cultures in the way people develop psychological competencies in the period from birth through adolescence

PSYC 458 Applied Developmental Psychology (3) Prerequisite: PSYC 100 and either 355, 356 or 357 An examination of a topic in developmental psychology which has been examined in the laboratory and is central to developmental theories Extension of these analyses to practical and social issues in the daily life of the developing individual Topics will vary from semester to semester Repeatable up to a maximum of six credits

PSYC 460 Psychological Foundations of Personnel Selection and Training (3) Prerequisite PSYC 200 or equivalent. An examination of issues and processes involved in the design and evaluation of personnel selection and training programs in a variety of organizational settings: job, person and organizational analysis, organizational choice, development of predictors, evaluation of instructional and training systems, criteria for performance evaluation, promotion and training

PSYC 462 Engineering Psychology and Training Models (3) Prerequisite, PSYC 200 or equivalent, and one other 200 level course. For majors An examination of the theories and research regarding human performance capabilities and skills (information processing, decision-making, environmental constraints, automation), training procedures (traditional methods, programmed learning, computer-assisted instruction) and models and procedures for evaluating training programs in industry, education, and service organizations

PSYC 463 Psychology of Motivation and Attitudes in Organizational Settings (3) Prerequisite PSYC 361 or equivalent Theories, research and practice regarding the assessment, understanding, and prediction of motivation at work Theories of, and the assessment and consequences of, various work-related attitudes. An intergration of theory, research and practice

PSYC 464 Psychology of Leaders in Work Organizations (3) Prerequisite PSYC 361 or equivalent The psychologial assumptions and implications of various theories of management and leadership Selections and training, development of careers, influence processes; change of managerial behavior,and the impact of the larger environment, nature of product or service, and organization structure on managerial behavior

PSYC 465 Psychology of Organizational Processes (3) Prerequisite PSYC 361 or equivalent Various theories of interpersonal, intra- and inter-group relations, with emphasis on issues of conflict, competition, cooperation and the role of power in organizations Organizational diagnosis and intervention

PSYC 466 Environmental and Ecological Psychology (3) Prerequisite PSYC 200 or equivalent An examination of measurement description and impact of the physical and social environments which affect various aspects of behavior in school, at work and during leisure

PSYC 468 Field Experience and Special Assignments in Honors (1-3) Prerequisite Supervisor and honors faculty approval An individual experience arranged by the honors student and his or her supervisor A proposal submitted to the honors faculty in the semester preceding registration for the course should state the activities anticipated and the method of evaluation

PSYC 469 Honors Thesis Proposal Preparation (1-3) Prerequisite Honors thesis supervisor's approval Development of honors thesis proposal by preliminary research and literature review Presentation of formal preposal to the thesis committee Repeatable to a maximum of 3 credits

PSYC 470 Comprehensive Review For Honors Students (3) Prerequisite Honors faculty approval This course provides students with senior review guided by the honors faculty for preparation and completion of the honors examination.

PSYC 478 Independent Study in Psychology (1-3) Prerequisite consent of the instructor in the form of a written agreement signed by the student and the faculty mentor The students must have completed 9 hours in psychology with at least a 3 0 G P A in psychology and a 2 8 overall G P A Integrated reading under direction leading to the preparation of an adequately documented report on a special topic Students may not accumulate more than a total of 9 credits in PSYC 478 and 479 without permission of the Chair of the Department of Psychology or the Psychology Undergraduate Committee.

PSYC 479 Special Research Problems in Psychology (1-3) Prerequisite consent of the instructor in the form of a written agreement signed by the student and the faculty mentor The students must have completed 9 hours in psychology with at least a 3 0 G P A in psychology and a 2 8 overall G P A Research and data collection under individual faculty supervision, leading to a written research report

PSYC 488 Advanced Psychology I (Honors) (3) Usually taken during junior year Prerequisites: PSYC 200 and permission of department honors committee Seminar covering topics in sensation, perception, learning, and motivation.

PSYC 489 Senior Seminar (3)

PSYC 498 Advanced Psychology II (Honors) (3) Usually taken during senior year Prerequisite PSYC 488H Semester covering topics in measurement, social processes and other subject matter of current interest

PSYC 499 Honors Thesis Research (3) Usually taken during last semester in residence Prerequisite permission of thesis advisor

RECR — Recreation

RECR 130 Recreation and Leisure (3) The study of recreation and leisure behavior, including concepts, theories and terminology Psychological, social psychological and sociological factors that affect recreation and leisure behavior throughout the lifespan Analysis of recreation and leisure behavior in our changing society

RECR 150 Camp Counseling (2) A study of the philosophy and techniques of camp counseling including the qualifications, responsibilities and skills involved, the basic organization, administration and program planning practices and problems of camping as a whole, the relationship of these practices and problems to the counselor and his or her probable success Outdoor skills will be taught and practiced insofar as possible with field trips included

RECR 200 Sophomore Seminar (1) Prerequisite, permission of department Discussion, observation, analysis and assessment of a number of possible placements under various jurisdictions, with a number of age groupings, in different settings, with diverse facilities and programs for their activity leadership role in sophomore summer field work practicum Work in the field with supervisors to identify strategies and problems and to develop materials appropriate to the interviewing and placement process

RECR 220 Methods and Materials in Recreation (3) Two hours of lecture and three hours of laboratory per week Roles, duties and responsibilities of the recreation activity leader Practical experience in planning, organizing, leading, participating and evaluating a wide variety of recreation activities

RECR 270 Leisure Services and Special Populations (3) Leisure services programming for special populations (physically disabled, mentally retarded, visually impaired, hearing impaired, law offenders, psychologically disabled, and aged) Emphasis on integration of special populations into the mainstream of leisure services, including history, legislation and population characteristics

RECR 271 Implications of Disabling Conditions For Therapeutic Recreation (3) Etiology symptomatology and characteristics of disabling conditions and their implications for therapeutic recreation interventions in clinical and non-clinical settings Orientation to health-related disciplines and appropriate terminology

RECR 300 Senior Seminar (1) Prerequisite permission of department Review and evaluation of academic and other professional preparation analysis of future plans and final preparation for entry into the recreation profession

RECR 325 General Fundamentals of Recreation (3) This course is designed for and limited to students not majoring in recreation who wish to develop some understanding of the place, importance and potentialities of recreation in modern life Included will be limited study of the areas of philosophy program planning, leadership techniques, organization and administration, and interrelationships with other fields

RECR 335 Recreation and Leisure (3) Introduction to the study of leisure or park and recreation services The challenges, opportunities, and problems of leisure as it affects individuals' lives and the social fabric of their local, national and world communities

RECR 337 Social Psychological Foundations of Leisure (3) The basic social psychological principles and processes underlying human behavior are explored and applied to understanding leisure behavior and problems This course examines how one's cognitions about leisure influence and are influenced by other's leisure cognitions and social leisure behavior

RECR 340 Field Work I (6) Prerequisites RECR 200, and permission of department Practical field experience in developing recreation activity leadership skills at an organized recreation department or agency Students will be expected to make a commitment for a minimum of eight weeks or equivalent

RECR 341 Field Work II (8) Prerequisites RECR 300, and permission of department Observation and field work placement selected and assigned on the basis of the student's interest and future employment plans Leadership activity and participation in staff activities and responsibilities

RECR 350 Recreational Use of Natural Areas (3) An introductory orientation to the outdoor recreation phenomenon Factors stimulating outdoor recreation involvement, federal, state, local, public, and private departments and agencies managing outdoor recreation areas, legislation philosophical concepts, planning and management issues

RECR 351 Nature Interpretation (3) Principles and techniques used for interpretation of environmental, natural, historic and other features of recreation and parks facilities to the visitor Individual and group field trips will be required

RECR 375 Principles of Therapeutic Recreation (3) Prerequisite RECR 271 History, philosophy, and current principles of therapeutic recreation processes and application

RECR 376 Case Study Laboratory (1) Pre- or corequisite RECR 375 An applied experience where students develop and carry out an individualized intervention plan in an approved therapeutic recreation setting Consists of one hour class per week in addition to weekly work in the therapeutic recreation setting

RECR 389 Topical Investigations (1-3) Repeatable to 6 credits Independent study by an individual student or a group of students in special areas of knowledge not covered by regularly scheduled courses

RECR 410 Measurement and Evaluation in Recreation (3) Prerequisite RECR 130, or permission of department A survey course in measurement tools and methods and application of measurement to evaluative processes applicable in specific and broad areas of interest and specialization in recreation and parks

RECR 415 Quantitative Methods (3) A course covering the statistical techniques most frequently used in research pertaining to recreation An effort will be made to provide the student with the necessary skills, and to acquaint him with the interpretations and practical applications of these techniques

RECR 420 Program Planning and Analysis (3) Prerequisite RECR 130, or RECR 325 Recommended RECR 220 The essential elements and basic principles involved in the organization and administration of various types of recreation programs with emphasis on the development of practical, comprehensive program plans and evaluations for a population and a facility within the student's particular area of interest

RECR 421 Campus Leisure Services Programming (3) An introduction to the various elements of campus leisure services program development Intramurals, clubs and organizations as well as an analysis of the campus union as a key in the college university community activity effort

RECR 426 Industrial Employee Recreation (3) Prerequisites RECR 130, and RECR 335 An introductory study of the philosophy of and practices and problems in industrial recreation Where possible the course will include opportunities for observation and for meeting visiting specialists

RECR 432 Philosophy of Recreation (3) A study of the meanings, relationships, and services of recreation as expressed by past and present authorities and leaders This course should be of interest to people active in education, social work, and related fields

RECR 440 Leisure Services for the Aging (3) Prerequisite RECR 130 Theory and practice in program development of services for the aging Emphasis on (1) needs assessment theory and practice, (2) program development, (3) evaluation theory and practice, (4) leisure service settings for the aging, and, (5) issues confronting providers of services to the aging population

RECR 450 Camp Management (3) Prerequisite RECR 150, or permission of department An advanced camping course for those students with previous training and experience, organization, administration, programming, current trends, evaluation, and special problems Whenever possible, visiting specialists and field trips will be included

RECR 454 Outdoor Education (3) Field experience and resident camping in an outdoor setting will be used to present the activities and techniques recommended for modern outdoor education practice Where possible groups of participants will be utilized as subjects for practice instructional work Activity will emphasize not only the subject matter of science and education but also the broad concepts of conservation, worthy use of leisure time, education for democratic living, etc

RECR 455 Historical and Natural Interpretation (3) Prerequisite RECR 351 Examination of the philosophies of and techniques appropriate to historical and natural interpretation Analysis and development of interpretive programs and visitor information services Field trips and laboratory experiences will be required

RECR 457 Concepts and Issues in Outdoor Recreation (3) A survey of the relationships between land, leisure and people as increasingly vital and interdependent issues in American civilization The mainstream of thoughts methods and policies of resource based recreation, with special attention to the history of conservation and the significance of wilderness

RECR 460 Leadership Techniques and Practices (3) Prerequisite RECR 130 Various types and dynamics of recreation leadership at academic, agency, small and large group levels Acquisition of tangible techniques, such as goal setting, decision making, and leadership for purposes of organizing, implementing, observing and analyzing human function in organizational settings

RECR 463 Supervisory Techniques in Recreation (3) Prerequisite RECR 130, or RECR 325, or RECR 335 A study of the principles, methods, techniques as well as an analysis of the functions of supervision in the recreation and parks environment This course is designed to advance the student's understanding of the art of building human relationships, and to apply the emerging concepts and principles of modern supervision to practical situations in which administrators, supervisors, leaders (both professional and paraprofessional) and volunteers are working

RECR 475 Problems in Therapeutic Recreation (3) Prerequisite RECR 375 Problems encountered in the delivery of therapeutic recreation services to individuals with special problems Current trends, innovative service delivery models, literature review, and identification of funding sources

RECR 476 Institutional Recreation (3) Prerequisite permission of department An introductory study of the philosophy of and practices in hospital and institutional recreation Where possible the course will include opportunities for observation and for meeting visiting specialists

RECR 489 Field Laboratory Projects and Workshop (1-6) A course designed to meet the needs of persons in the field with respect to workshops and research projects in special areas of knowledge not covered by regularly structured courses

RECR 490 Organization and Administration of Recreation (3) A study of the organizational patterns and administrative problems involved in the various types of operating recreation departments and agencies, forms of organization, finance and budget personnel public relations

RECR 493 Tourism and Commercial Leisure Services (3) A study of the tourism and commercial leisure services industries Skill in feasibility study and management Representative types of tourism and leisure services enterprises and their relationships to the public sector

RECR 495 Recreation Resource and Facility Planning I (3) Basic principles of planning, design development, and maintenance of community recreation areas and facilities The interrelationships between local regional state, and national park and recreation systems

RECR 497 Recreation Resource and Facility Planning II (3) Prerequisite RECR 495 or permission of department Principles of design development procedures and maintenance considerations for recreation areas and facilities Use of analytical methods to carry out park designs and development of skills in graphically conveying design concepts Safety, efficiency and economy as they affect design, development and park maintenance

RECR 498 Special Topics in Recreation (3) Repeatable if content differs Prerequisite permission of department Topics of special interest in areas not covered by regularly scheduled courses

RLST — Religious Studies

RLST 125 Introduction to Religion (3) An introduction to Judaism, Christianity and the religions of Asia consideration of modern theories of religion including critics (e.g. Freud Marx) and reinterpretation (e.g. Tillich, Bonhoeffer) some attention to recent religious movements in the west such as Yoga Pentecostalism Zen and the Jesus movement

RLST 200 Modern Religious Thought (3) Major modern religious thinkers and intellectual movements in Europe and America from 1900 to the present Study of Protestant Catholic and Jewish writings representing liberalism and modernism, fundamentalism neoorthodoxy Vatican II, and the 'Death of God' theology Readings include Tillich Barth Niebuhr, Bonhoeffer Buber Heschel, Rubenstein and Teilhard

RLST 233 History of Jewish Thought I (3) An exploration of the development of classical and Rabbinic Jewish covenantal prophecy apocalyptic development of legalism in Hebrew scriptures early mysticism covenantal demands in Rabbinical thought pietist attitudes and philosophy in the Middle Ages Social factors and their intellectual repercussions for example Karaites and the crusades

RLST 234 History of Jewish Thought II (3) The impact of historical events on Jewish thought from the 1492 Spanish expulsion to the present false Messianism emancipation, Hasidism, varieties of orthodoxy and reforms since development in America

RTVF — Radio Television and Film

RTVF 124 Mass Communication in 20th Century Society (3) The evolution of mass communications and the impact of the media on contemporary society Emphasis on broadcasting and film treatments of social economic or political issues

RTVF 222 Introduction to Radio, Television, and Film (3) The development scope and influence of radio, television, and film, emphasis on the relationship of the industries to audiences advertisers and government

RTVF 223 The Television Program: Planning and Management (3) Prerequisite RTVF 222 Study of basic program formats and variations with special emphasis on pre-production planning production organization management, facility utilization and cost analysis

RTVF Upper-level Course Prerequisites: RTVF 222 and RTVF 223 are prerequisites for all majors prior to enrollment in upper level courses Non majors are required to obtain instructor's consent for all upper level courses All students are limited to one production course per semester unless permission is obtained prior to registration

RTVF 302 Beginning Sound Production (3) Prerequisite RTVF 223 Practical experience in sound production, including scripting acoustics planning recording, editing and coordination of personnel Application principally toward radio

RTVF 314 Introduction to the Film (3) An elementary survey of the film as an art form included are the medium of the cinema, a brief survey of its development film genres esthetics, criticism and the current international scene A series of significant American and foreign films are viewed

RTVF 317 Radio and Television Continuity Writing (3) Prerequisites RTVF 223 and ENGL 391 or exemption from the latter Principles methods and limitations of writings for radio and television Application toward writing of general types of continuities and commercials

RTVF 332 Public Broadcasting (3) Public television and radio development problems influence its place in contemporary broadcasting, through the viewing of and listening to selected programs

RTVF 333 Television and Children (3) Prerequisites RTVF 223 or consent of the instructor A study of programming designed for children investigation of current research and the analysis of specific programs Field studies with local children

RTVF 340 Principles of Television Production Techniques (3) Prerequisite: RTVF 223 and consent of the instructor. Theory, methods, techniques and problems of television production: television cameras and lenses, lighting theory and practices; audio; graphic arts and special effects. Practical application in television studios.

RTVF 346 Television News and Public Affairs (3) Prerequisite: RTVF 317 or JOUR 360. Development of broadcast journalism; current problems concerning radio and television news; and the development of the documentary.

RTVF 347 Broadcast Processes and Effects (3) Prerequisite: RTVF 223. Common analytic approaches to methods of broadcasting and their effects on society; opinion change principles; of mass persuasion, social consequences of broadcasting.

RTVF 351 Television Programming (3) Prerequisite: RTVF 223. Introduction to the history, types, theories, regulations, and conventions of television programming. Exploration of the roles of programmers, advertisers, ratings services, producers, and regulatory bodies through a programming simulation.

RTVF 355 Film Production (3) Prerequisite: consent of instructor. A study of the theoretical and practical aspects of 16mm film production. Through reading and practice, students are familiarized with basic cinematography, lighting, editing, pictorial composition, and film continuity as a communication arts medium.

RTVF 356 Film Production I, Introduction (3) Prerequisites: for majors, RTVF 222 and consent of instructor; for non-majors, consent of the instructor. Introduction to film technology and techniques.

RTVF 357 Film Production II, Cinematography (3) Prerequisites: RTVF 356 and consent of instructor. Development of proficiency in 16mm film production.

RTVF 384 Field Work Experience (1-3) Supervised, professional field work experience in business, industry, government or education. Enrollment is by permission of the department and is limited to majors.

RTVF 385 Field Work Analysis (1-3) A seminar and/or a written critique of the field work experience is required. Enrollment is by permission of the department and is limited to majors.

RTVF 402 Advanced Sound Production (3) Prerequisite: RTVF 302 and consent of instructor. An advanced sound production methodology in radio drama and documentaries.

RTVF 413 The History of the Film (3) An advanced survey of the film as an art form. Cinema pre-history, actualities and the Lumiere tradition, Melies, Griffith, and their contemporaries, the silent film (1920-29) Germany, Russia; and the U.S.A., screen comedy, the sound film (1926-present): American and foreign master directors, recent and current trends. Recommended prior to this course: RTVF 314.

RTVF 414 Contemporary American Cinema (3) Prerequisite: RTVF 222. An analysis of the trends and major social issues in American culture as they are expressed through the film medium. Emphasis on 'new wave', experimental, underground, independent, and cinema verite motion pictures.

RTVF 415 Contemporary European Cinema (3) A comparative and critical analysis of the European motion picture, both as a distinct art form reflecting the national character of a particular country and as a medium for mass communications; demonstrating the universality of the human condition.

RTVF 417 Dramatic Writing For Broadcasting and Film (3) Prerequisite: RTVF 317 or consent of instructor. An introduction to the principles, methods and limitations of writing comedy, drama and the documentary for radio, television, and film.

RTVF 418 The Film Auteur (3) The intensive chronological study of the work of one European or American film director each semester.

RTVF 419 Film Genres (3) The study of one major film genre each semester (the gangster film, the western, science fiction and horror, the political film). Cinema develops formal and thematic conventions and how, as a medium, for reflecting social ideals and needs. Repeatable to a maximum of six credits.

RTVF 420 The Documentary Film (3) Growth, implication, and the use of the international nonfiction film as propaganda; public service, promotion, education, and entertainment. Case studies from representative documentaries will be analyzed.

RTVF 421 Film Criticism and Theory (3) Critical-aesthetic approaches to film in order to develop a vocabulary for film analysis. Included will be shot analysis, montage and deep focus, the Auteur theory, the role of screenwriter director of photography, actor, genre analysis, analysis of film as popular art.

RTVF 424 The Film Industry: History and Technology (3) The history, status and present functions of the American film industry including the studio system, the innovation of color and sound, distribution and exhibition.

RTVF 425 Television and Politics (3) Critical review of studies of the effects of political broadcasts; legal and social issues; surveys and media campaigns.

RTVF 440 Television Direction (3) Prerequisites: RTVF 340 and consent of instructor. Principles of television direction including elements of composition, picturization, timing, script notation and program coordination.

RTVF 441 Television Direction II (3) Prerequisite: RTVF 440 or consent of instructor. Advanced theories of television direction: script analysis and adaptation, production coordination, casting, blocking, rehearsals and mixing.

RTVF 447 Quantitative Methods of Broadcast Research (3) Prerequisite: RTVF 347 or the consent of instructor. An examination of the fundamentals of survey research methodology as it relates to the study and analysis of broadcast audiences.

RTVF 449 Television Workshop (1-3) Prerequisite: Consent of instructor. Special studio projects. Repeatable to a maximum of six credits.

RTVF 450 Radio and Television Station Management (3) The role of the manager in the modern broadcasting industry. Station communication factors, regulation, licensing; personnel functions, sales, programming supervision, audience analysis, and station promotion.

RTVF 451 Broadcast Criticism (3) An analysis of the professional, historical, social, and psychological criticism of American radio and television, together with practical application of professional and scholarly critical methods.

RTVF 452 International and Comparative Broadcasting Systems (3) A comparative study of international broadcasting program policies, economic systems, control and organization. The use of broadcasting in international affairs as an instrument of propaganda, culture and information dissemination. Monitoring of overseas broadcasts, television programs and discussions with representatives of domestic and foreign international broadcast agencies.

RTVF 453 Broadcast Regulation (3) Prerequisite: RTVF 223. Legal issues involving radio and television: freedom, restraints, self-regulation; regulation of programming, competition, rights as seen by the broadcaster, regulatory agencies and the public.

RTVF 454 Cable Television (3) Prerequisite: RTVF 223. History, regulatory development, system designs, communications capability and franchising of cable television.

RTVF 456 Structure and Criticism of TV Advertising (3) Prerequisites: RTVF 222, RTVF 223 and RTVF 317. An examination of the persuasive power of television advertising. Analysis of form, structure and content of the television commercial and techniques used to influence attitudes and behavior.

RTVF 457 Media Economics (3) Economic issues involving radio, television, film, and new technologies of cable and satellite transmission.

RTVF 466 Film Production III, Synchronized Sound Film Systems (3) Prerequisites: RTVF 355 and consent of instructor. Synchronized sound and color technology with emphasis on the 16mm format.

RTVF 467 Film Production IV, Advanced (3) Prerequisites: RTVF 464 and consent of instructor. Direction and production of 16mm, color, synchronized sound motion picture. Production management, cinematography, and sound recording.

RTVF 498 Seminar (3) Prerequisites: senior standing and consent of instructor. Present day radio-television-film research. Repeatable to a maximum of six credits.

RUSS — Russian

RUSS 001 Elementary Russian for Graduate Students (3) Intensive elementary course in the Russian language designed particularly for graduate students who wish to acquire reading knowledge. This course does not carry credit towards any degree at the University.

RUSS 101 Elementary Russian I (5) Two hours of lecture and six hours of laboratory per week. Not open to native speakers of Russian. Elements of grammar, pronunciation, conversation and reading, exercises in translation.

RUSS 102 Elementary Russian II (5) Two hours of lecture and six hours of laboratory per week. Prerequisite: RUSS 101. Not open to native speakers of Russian. Continuation of RUSS 101. Elements of grammar, pronunciation, and conversation; exercises in translation.

RUSS 201 Intermediate Russian I (4) Two hours of lecture and four hours of laboratory per week. Prerequisite: RUSS 102. Not open to native speakers of Russian. Continuation of RUSS 102. For students planning to continue the study of Russian. Review and expansion of grammar knowledge, conversation and reading skills; exercises in translation. Note: this new RUSS 201 has no relation to the old SLAV 201, which is to be eliminated.

RUSS 202 Intermediate Russian II (4) Two hours of lecture and four hours of laboratory per week. Prerequisite: RUSS 201. Not open to native speakers of Russian. Continuation of RUSS 201. Review and expansion of grammar knowledge, conversation and reading skills. Exercises in translation.

RUSS 210 Structural Description of Russian (3) Pre- or corequisite: RUSS 201 or equivalent. An introductory linguistic course designed to order and supplement students' knowledge of the sound system and the inflectional system of the verb. A practical component on reading skills also focuses on the verb and methods of developing vocabulary.

RUSS 211 Applied Russian Phonetics (3) Prerequisite: RUSS 102. Not open to native speakers of Russian. Pronunciation, the sounds and intonational patterns of Russian in contrast with those of English.

RUSS 221 Masterworks of Russian Literature I (3) Introduction to the classics of Russian literature in translation, beginning with Pushkin in the early 19th century and concluding with works of Dostoevsky and Tolstoy in the later part of that century.

RUSS 222 Masterworks of Russian Literature II (3) Introduction to the classics of Russian literature in translation, beginning with the later works of Dostoevsky and Tolstoy and extending to the present and works by Solzhenitsyn.

RUSS 281 Russian Language and Pre-Revolutionary Culture (3) Not open to native speakers of Russian. Introduction to the Russian language and a study of Russian nationalism, artistic and social concepts in the development of Russian art, dance, geography, history and literature from the 18th to the 20th centuries. Lectures in English, with third hour devoted to basic language instruction (alphabet, vocabulary, pronunciation and minimal conversational skills).

RUSS 282 Russian Language and Soviet Culture (3) Prerequisite: RUSS 281. Not open to native speakers of Russian. Continuation of introduction to the Russian language and a study of cultural developments since the Revolution. Lectures in English, with third hour devoted to language study (overview of grammar, conversation, and basic reading).

RUSS 298 Special Topics in Russian Language and Literature (3) Repeatable to 6 credits if content differs.

RUSS 301 Advanced Russian Grammar and Composition I (3) Prerequisite: RUSS 202 or equivalent. A thorough training in the structure of the language, drill in Russian composition.

RUSS 302 Advanced Russian Grammar and Composition II (3) Prerequisite: RUSS 301. A continuation of RUSS 301.

RUSS 303 Russian Conversation: Functional Skills (3) Prerequisite: RUSS 202 or equivalent. Intended for students who do not anticipate having the opportunity to study in the Soviet Union. Skills for daily life (both function and etiquette) and argumentation (rhetoric).

RUSS 321 Survey of Russian Literature I (3) Prerequisite: RUSS 202 or equivalent. The first half of a survey of Russian literature.

RUSS 322 Survey of Russian Literature II (3) Prerequisite: RUSS 321 or equivalent. The second half of a survey of Russian literature.

RUSS 327 Old Russian Literature in Translation (3) Recommended: RUSS 221. Old Russian literature of the 11th-17th centuries for the general student. Selected texts will be read in translation, with analysis in terms of genre and historical setting.

RUSS 328 19th Century Russian Literature in Translation (3) Repeatable to 6 credits if content differs. Development of Russian literary thought in the Russian novel and short prose of the 19th century. Influence of western literatures and philosophies.

RUSS 329 Soviet Literature in Translation (3) Repeatable to 6 credits if content differs. Russian literature since 1917, both as a continuation of prerevolutionary traditions and as a reflection of Soviet ideology.

RUSS 381 Russian Civilization (in Russian) I (3) Prerequisite: RUSS 202. A historical survey of Russian civilization emphasizing architecture, painting, sculpture, music, ballet and the theater to the beginning of the 19th century pointing out the inter-relationship of all with literary movements. Taught in Russian.

RUSS 382 Russian Civilization (in Russian) II (3) Prerequisite RUSS 202 A historical survey of Russian civilization emphasizing architecture, painting, sculpture music, ballet, and the theater, from the beginning of the 19th century to the present pointing out the inter-relationships of all with literary movements Taught in Russian

RUSS 398 Selected Topics in Russian Language and Literature (3) Repeatable to 6 credits if content differs

RUSS 401 Advanced Russian Composition (3) Prerequisite RUSS 302

RUSS 402 Practicum in Written Russian (3) Prerequisite RUSS 401 or equivalent Improve comprehension of functional varieties of written Russian Develop ability to present in written form concise syntheses of source texts

RUSS 403 Russian Conversation: Advanced Skills (3) Prerequisite RUSS 303 or equivalent Advanced spoken production of high-level, abstract language

RUSS 404 Practicum in Spoken Russian (3) Prerequisite RUSS 403 or equivalent. To improve comprehension of rapidly spoken Russian of various functional styles and to develop ability to synthesize orally the content of spoken material

RUSS 405 Russian-English Translation (3) Pre- or corequisite RUSS 302 or equivalent Introduction to the principles of translation of a particular--typically diplomatic, business, or literary

RUSS 409 Selected Topics in Russian Language Study (3) Prerequisite permission of department Repeatable to 6 credits if content differs Presentation of a topic in Russian language study.

RUSS 410 Applied Russian Linguistics (3) The nature of applied linguistics and its contributions to the effective teaching of foreign languages Comparative study of English and Russian, with emphasis upon points of divergence Analysis, evaluation and construction of related drills

RUSS 411 Linguistic Analysis of Russian I (3) Prerequisites RUSS 210, and LING 200 Pre- or corequisite RUSS 301 Illucidation of theoretical concepts of modern linguistics through the analysis of problematic concepts in the Russian linguistic system Phonology and the syntax of the simple sentence

RUSS 412 Linguistic Analysis of Russian II (3) Prerequisite RUSS 411 Continuation of RUSS 411 The syntax of the complete sentence, semantics

RUSS 431 Russian Literature of the 19th Century I (3)

RUSS 432 Russian Literature of the 19th Century II (3)

RUSS 433 Russian Literature of the 20th Century (3)

RUSS 434 Soviet Russian Literature (3)

RUSS 439 Selected Topics in Russian Literature (3) Prerequisite permission of department Repeatable to 6 credits if content differs Presentation of a topic in Russian literature

RUSS 473 Recent History of the Russian Language (3) Prerequisite RUSS 210 or equivalent Linguistic interpretation of Russian texts from the late 18th century to the present

SLAV — Slavic

SLAV 469 Selected Topics in Slavic Studies (3) Prerequisite permission of department Repeatable to 6 credits if content differs Presentation of a topic in Slavic studies

SLAV 472 Comparative Slavic Linguistics (3) Prerequisite GERM 471 or equivalent Comparative Slavic linguistics and, especially, a concept of the place of the Russian language in the world of Slavic culture through the reading of selected texts illustrating common Slavic relationships and dissimilarities

SLAV 476 Old Church Slavonic (3) Introduction to the language of the oldest recorded Slavic documents Historical presentation of phonology morphology and syntax, reading of texts

SLAV 479 Selected Topics in Slavic Linguistics (3) Prerequisite permission of department Repeatable to 6 credits if content differs Presentation of a topic in Slavic linguistics

SLAV 499 Directed Study (1-3) Prerequisite permission of department For advanced students Repeatable to 6 credits if content differs

SOCY — Sociology

SOCY 100 Introduction to Sociology (3) The fundamental concepts and principles of sociology Includes consideration of culture, patterns of social interaction, norms, values, social institutions, stratification, and social change

SOCY 105 Introduction to Contemporary Social Problems (3) An examination of contemporary social problems through sociological perspectives, ways in which social problems are part of the organization of society a detailed study of selected social problems including social conflict and social inequality Not open to students who already have credit for SOCY 210

SOCY 120 Urban Sociology (3) Prerequisite SOCY 100 or 105 Urban growth and expansion characteristics of city populations, urban institutions and personality patterns relations of city and country

SOCY 201 Introductory Statistics For Sociology (4) Three lectures and two hours drill per week Prerequisites SOCY 100 or 105 and MATH 110 or equivalent Elementary descriptive and inferential statistics Construction and percentaging of bivariate contingency tables frequency distributions and graphic presentations measures of central tendency and dispersion parametric and nonparametric measures of association and correlation, regression, probability, hypothesis testing, the normal, binomial and chi-square distributions, point and interval estimates

SOCY 202 Introduction to Research Methods in Sociology (4) Prerequisite SOCY 201 The underlying logic major strategies, specific techniques and skills of sociological research Research design, measurement, data collection, sampling, field research experiments, surveys, index and scale construction, data analysis interpretation and report writing

SOCY 203 Sociological Theory (3) Prerequisite SOCY 100 or 105 Development of the science of sociology, historical backgrounds, recent theories of society Required of all sociology majors

SOCY 230 Sociological Social Psychology (3) Social psychology of groups such as committees teams clubs sects, social movements, crowds and publics Origin of the social self, role behavior, inter-group and intragroup relations

SOCY 300 American Society (3) The social structure and organization of American society with special reference to recent social change A sociological perspective on urban and other population trends, the character structure, values and ideology of Americans - social movements and changes in work, family life and recreation

SOCY 305 Scarcity and Modern Society (3) Prerequisite SOCY 100 or 300 The problems of resource depletion and the deterioration of the environment Emphasis is on the relationship to life styles, individual consumer choices, cultural values, and institutional failures Projection of the future course of American society on the basis of the analysis of scarcity, theories of social change, current trends, social movements government actions, and the futurist literature

SOCY 312 Family Demography (3) Study of the family and population dynamics Fertility issues, such as teenage pregnancy, the timing of parenthood, and the determinants and consequences of family size, as they relate to family behavior, such as marital patterns child care use and the relationship between work and the family Policy issues that relate to demographic changes in the family

SOCY 324 Racism and Intergroup Conflict (3) Prerequisite SOCY 100 or 105 An introduction to the study of racism and intergroup conflict in the U S history of racism, racial stereotypes, roles, and myths, individual and institutional racism, race and its relation to culture stratification, social movements, and social change

SOCY 325 Sex Roles (3) Sex-role differentiation and sex inequality from a sociological perspective Institutional bases of sex inequality, cultural views of the sexes sex role socialization and sex-role change Emphasis on contemporary American society

SOCY 327 Introduction to the Study of Deviance (3) Prerequisite SOCY 100 or 105 An introduction to the sociological study of deviant behavior covering such topics as mental illness, sexual deviance and the use of drugs Students may not receive credit for SOCY 327 if they have completed SOCY 427

SOCY 330 Community Organization (3) Prerequisite SOCY 100 or 105 Community organization and its relation to social welfare, analysis of community needs and resources health, housing recreation community centers neighborhood projects

SOCY 331 Work, Bureaucracy, and Industry (3) A sociological approach to the world of work occupational careers, and personal experiences in the bureaucratic organizations of modern industrial society

SOCY 333 Technology and Society (3) An examination of human evolution and the interplay between technological discoveries and changes in human societies The impact of technology on agriculture the industrial revolution politics economics, and health education and welfare as these affect changes in social organizations The development of small cities the better utilization of energy the use of wealth and abundance and its relation to the division of labor and the role of technology in shaping of new forms of political and economic organizations

SOCY 341 Inequality in American Society (3) The sociological study of the status and treatment of the poor minorities, the aged, women, deviant subcommunities and the physically handicapped The dynamics of inequality its social production politics, future and ideological bases Utopian communities, efforts to eliminate inequality

SOCY 343 Sociology of Marriage and Family (3) Prerequisite SOCY 100 or 105 The sociological study of marriage and family life including a consideration of demographic trends in marriage childbearing, divorce sociological theories of mate selection marital interaction, and marital dissolution The course includes discussion of some contemporary controversial issues, such as the relationship of unmarried couples alternative marriage forms abortion, and violence in the family

SOCY 359 Social Field Training (1-3) Prerequisites permission of instructor and at least 12 hours of sociology credit Enrollment restricted to available placements The student will be responsible to an agency for a program of in-service training Group meetings, individual conferences and written program reports will be a required part of the course

SOCY 378 Honors Independent Reading in Sociology (3) Prerequisite acceptance into the Sociology Honors Program [This course permits Sociology Honors students to undertake a program of reading on a particular problem in sociology or a subfield therein. The reading will be done under the supervision of a member of the sociology faculty. Required of Sociology Honors students.]

SOCY 388 Honors Independent Research in Sociology (3) Prerequisite acceptance into Sociology Honors Program and SOCY 378 [LB]This course permits Sociology Honors students to define a particular problem in sociology or a subfield therein and to develop a research plan for use as a thesis topic The work will be done under the supervision of a member of the sociology faculty.]

SOCY 389 Honors Thesis Research (3) Prerequisite acceptance into Sociology Honors Program and SOCY 378, SOCY 388 Student research under the direction of a member of the sociology faculty culminating in the presentation and defense of a thesis reporting the research

SOCY 398 Special Topics in Sociology (1-3) Prerequisite SOCY 100 or 105 topics of special interest to both sociology majors and non-majors Repeatable for credit when the subject matter changes, up to a maximum of six credits

SOCY 399 Independent Study in Sociology (1-6) Prerequisites consent of instructor and 12 credits in sociology to include one or more of - SOCY 201 202 203 Integrated reading or research under the direction and supervision of a faculty member A maximum of 6 credits may be earned by a student for the same field experience in SOCY 386/387 and 399 combined

SOCY 401 Intermediate Statistics for Sociologists (3) Prerequisite SOCY 201 or equivalent and six additional credits in sociology Intermediate correlation techniques, analysis of variance, sampling additional nonparametric techniques, additional topics in inferential statistics

SOCY 402 Intermediate Procedures For Data Collection (3) Prerequisite SOCY 202 or equivalent or permission of the instructor An intermediate survey of the major research methods used by sociologists, including survey research experimentation, observation, archival research and in-depth interviewing The selection of an appropriate research method, with analysis of the strengths and weaknesses of various methods, practical issues data collection and preparation, and analytical techniques

SOCY 403 Intermediate Sociological Theory (3) Prerequisite SOCY 203 Major theoretical approaches e g Functionalism conflict symbolic interactionism, and their implicit methods of logic illustrated by case studies Original works of major theorists in historical perspective

SOCY 404 Methods of Quantitative Analysis (3) Prerequisite SOCY 202 or equivalent or permission of instructor A computer-based approach to the analysis of sociological data Statistical program packages such as spss, using both card input and computer terminals data storage and file manipulation Use of multivariate statistical techniques national sample surveys census, and artificial data sets constructed to illustrate specific features of the techniques

SOCY 410 Population I (3) Prerequisite junior standing SOCY 100 or 105 not required Population distribution and growth, sources of demographic data population composition population theories mortality fertility and family planning migration and population problems and policy

SOCY 411 Population II (3) Prerequisite SOCY 410 or permission of instructor Introduction to basic techniques for analyzing population change The measurement of fertility mortality and migration

SOCY 423 Ethnic Minorities (3) Prerequisite SOCY 100 or 105 Basic social processes in the relations of ethnic groups immigration groups and the Negro in the United States ethnic minorities in Europe

SOCY 424 Sociology of Race Relations (3) Prerequisite: 9 credits in sociology or permission of instructor. Analysis of race-related issues, with a primary focus on American society. The historical emergence, development, and institutionalization of racism; the impact of racism on its victims; and racially based conflict.

SOCY 425 Sex Roles and Social Institutions (3) Prerequisite: SOCY 325 or permission of instructor. Relationship between sex roles and the structure of one or more social institutions (e.g., the economy, the family, the political system, religion, education). The incorporation of sex roles into social institutions; perpetuation or transformation of sex roles by social institutions; how changing sex roles affect social institutions.

SOCY 426 Sociology of Religion (3) Prerequisite: SOCY 100 or 105. Varieties and sources of religious experience. Religious institutions and the role of religion in social life.

SOCY 427 Deviant Behavior (3) Prerequisite: SOCY 327 or 12 credits in sociology or permission of instructor. Current theories of the genesis and distribution of deviant behavior, and their implications for a general theory of deviant behavior. Definitions of deviance, labeling theory, secondary deviance.

SOCY 430 Sociology of Personality (3) Prerequisite: SOCY 100 or 105. Development of human nature and personality in contemporary social life; processes of socialization; attitudes; individual differences and social behavior.

SOCY 431 Formal and Complex Organizations (3) Prerequisite: SOCY 331 or permission of instructor. The concept of formal organization. The study of functioning and control in the operation of bureaucracies such as corporations and in large-scale organizations such as military, religious and educational hierarchies. Forms of recruitment, internal mobility and organizational personality. Relations between large-scale organizations and with the larger society.

SOCY 432 Collective Behavior (3) Prerequisite: SOCY 100 or 105 or 230 or permission of instructor. Unlike most sociology courses which focus on structured groups, this course examines instances of transient behavior: crowds, disasters, hysterical contagion, revolution, and social movements, including American Utopian experiments.

SOCY 433 Social Control (3) Prerequisite: SOCY 100 or 105 or 200. Forms, mechanism, and techniques of group influence on human behavior; problems of social control in contemporary society.

SOCY 440 Sociology of the Self-Concept (3) The nature of the self-concept and the social forces that mold it. Major sociological, psychological, and psycho-analytic theories of the self-concept. Self-concept motives, mechanisms of self-defense, and the nature of a healthy self-concept. Empirical research dealing with the bearing of social interaction, social structure, social context and social institutions on the self-concept.

SOCY 441 Social Stratification and Inequality (3) Prerequisite: SOCY 341 or permission of instructor. The sociological study of social class, status, and power. Topics include theories of stratification, correlates of social position, functions and dysfunctions of social inequality, status inconsistency, and social mobility.

SOCY 443 The Family and Society (3) Prerequisite: SOCY 343 or permission of instructor. Study of the family as a social institution; its biological and cultural foundation, historic development, changing structure, and function; the interaction of marriage and parenthood, disorganizing and reorganizing factors in present day trends.

SOCY 445 Sociology of the Arts (3) Prerequisite: SOCY 100 or 105. Functions of the arts as a social institution. Social role of the artist. Recruitment to and organizational structure of artistic professions. Art forms and social characteristics of audiences. Changing technology and social values as reflected in artistic expression.

SOCY 447 Small Group Analysis (3) Prerequisites: SOCY 100 or 105 and 201 (sociological statistics) or equivalent. Analysis of small group structures and dynamics. Review of research on small groups in real life settings and in laboratories. Presentation of techniques used in small groups.

SOCY 450 Applied Sociology (3) Prerequisites: SOCY 201, 202, 203. The uses of sociology in non-academic settings. The ethics and social organization of sociological research, the range of applied settings, the development and evaluation of proposals, and the communication of sociological findings to non-sociological audiences.

SOCY 457 Sociology of Law (3) Prerequisite: SOCY 100 or 105. Law as a form of social control; interrelation between legal and other conduct norms as to their content, sanctions, and methods of securing conformity; law as an integral part of the culture of groups; factors and processes operative in the formation of legal norms as determinants of human behavior.

SOCY 460 Sociology of Work (3) Prerequisite: SOCY 331 or permission of instructor. Analysis of the American work world with special attention to the impact of social change and occupational conflicts on the individual worker. Professionalization, career patterns, problems of minority groups and the future of work.

SOCY 462 Industrial Sociology (3) Prerequisite: SOCY 331 or permission of instructor. The sociology of human relations in American industry and business. Complex industrial and business organization as social systems. Social relationships within and between industry, business, community and society.

SOCY 464 Military Sociology (3) Prerequisite: SOCY 100 or 105. Social change and the growth of military institutions. Complex formal military organizations. Military service as an occupation or profession. The sociology of military life. Relations between military institutions, civilian communities and society.

SOCY 465 The Sociology of War (3) Prerequisite: SOCY 100 or 105. The origin and development of armed forces as institutions, the social causes, operations and results of war as social conflict, the relations of peace and war and revolution in contemporary civilizations.

SOCY 466 Sociology of Politics (3) Prerequisite: 9 credits in sociology. An introduction to the sociology of political phenomena. Consideration of the basic concepts and major findings in the field, the relationship of the polity to other institutional orders of the society, the relationship of political activity in america to the theory of democracy.

SOCY 467 Sociology of Education (3) Prerequisites: SOCY 100 or 105 or permission of the instructor. Listed also as EDSF 430. Sociological analysis of educational institutions and their relation to society goals and functions, the mechanisms of social control, and the impacts of stratification and social change. Study of the school as a formal organization, and the roles and subcultures of teachers and students.

SOCY 470 Rural-Urban Relations (3) Prerequisite: SOCY 100 or 105. The ecology of population and the forces making for change in rural and urban life, migration, decentralization and regionalism as methods of studying individual and national issues. Applied field problems.

SOCY 473 The City (3) Prerequisite: SOCY 100 or 105. The rise of urban civilization and metropolitan regions, ecological process and structure, the city as a center of dominance; social problems, control and planning.

SOCY 474 Soviet Ethnic Issues (3) Ethnic processes and issues in the Soviet Union. The major ethnic groups in the U.S.S.R. cultural, political, religious, economic, and other aspects of Soviet ethnicity.

SOCY 498 Selected Topics in Sociology (1-3) Prerequisite: SOCY 100 or 105. Topics of special interest to advanced undergraduates in sociology. Such courses will be offered in response to student request and faculty interest. No more than 6 credits may be taken by a student in selected topics.

SPAN — Spanish

SPAN 100 Applied Spanish (3) Vocabulary and structures pertinent to specific professions and vocations: medicine, nursing, law enforcement, firefighting, and social work. Cannot be used to satisfy divisional or Spanish major language requirements.

SPAN 101 Elementary Spanish (4) Four recitations per week, and one optional laboratory hour. Introduction to basic structures, with emphasis upon understanding and speaking. Normally leads to 102, but gifted students may be recommended for 102H.

SPAN 102 Elementary Spanish (4) Four recitations per week, and one optional laboratory hour. Continuation of SPAN 101, with increasing emphasis upon reading skill, reinforced by discussion and composition.

SPAN 103 Review of Elementary Spanish (4) An intensive beginning course in Spanish language skills: guided practice in reading and writing, understanding the spoken language and conversation, to enable the student to move more quickly to advanced courses. Enrollment restricted to students who have had at least two years of Spanish or the equivalent and who do not qualify for SPAN 203, and to students who already have a good background in at least one other language (successful completion of level 4 in high school, or 115 or 104 or equivalent at the University level).

SPAN 203 Intermediate Spanish (4) Four recitations per week, and one optional laboratory hour. Continued development of the skills of understanding and speaking with supplementary attention to reading and writing. Enriched course of study, with broad oral base and related development of reading and writing.

SPAN 204 Review of Oral and Written Spanish (3) Prerequisite: SPAN 203. A practical language course recommended for all students continuing in Spanish. May be taken concurrently with SPAN 221 or SPAN 205.

SPAN 205 Intermediate Conversation (3) Prerequisite: SPAN 203 or permission of instructor. Provides an opportunity to develop fluency in oral Spanish.

SPAN 221 Readings in Spanish (3) Prerequisite: SPAN 204. Selected readings from various genres in Spanish and Spanish American literature. Discussion and brief written reports in Spanish.

SPAN 301 Review Grammar and Composition (3) Prerequisite: SPAN 204 or equivalent. An intensive review of grammar and practice in Spanish composition.

SPAN 302 Review Grammar and Composition (3) Prerequisite: SPAN 301 or equivalent.

SPAN 310 Spanish Phonetics (3) Prerequisites: SPAN 204 or 205. Descriptive study of the Spanish sound system. Practice in phonetic perception, transcription, and articulation. Particular attention, to sentence phonetics, juncture, rhythm, stress, pitch.

SPAN 311 Advanced Conversation I (3) Prerequisite: SPAN 204 or 205 or consent of instructor. Designed to develop fluency and accuracy in speaking Spanish.

SPAN 312 Advanced Conversation II (3) Prerequisite: SPAN 205 or 311 or consent of instructor.

SPAN 315 Commercial Spanish (3) Prerequisite: SPAN 301 or equivalent or consent of instructor. Designed to give a knowledge of correct commercial Spanish including letters and business forms.

SPAN 316 Practicum in Translation I (3) Prerequisite: SPAN 301 or permission of instructor. Translation of non-literary, non-technical texts of expository prose into Spanish or English. Emphasis on the expansion of vocabulary and on the morphological differences in both languages.

SPAN 317 Practicum in Translation II (3) Prerequisite: SPAN 316 or permission of instructor. Continuation of SPAN 316. Emphasis on syntactical differences between Spanish and English.

SPAN 318 Translation of Technical Texts (3) Prerequisite: SPAN 317 or permission of instructor. Translation into Spanish or English of texts pertinent to medicine, social work, law or international affairs. May be repeated to a maximum of 6 credits, with change of topic.

SPAN 321 Survey of Spanish Literature: 12th-17th Century (3)

SPAN 322 Survey of Spanish Literature: 18th-20th Century (3)

SPAN 323 Survey of Spanish-American Literature (3) Basic survey of the history of Spanish-American literature.

SPAN 324 Survey of Spanish-American Literature (3) Basic survey of the history of Spanish-American literature.

SPAN 325 Spanish Civilization I (3) A survey of 2000 years of Spanish history, outlining the cultural heritage of the Spanish people, their great men, traditions, customs, art, and literature, with special emphasis on the interrelationship of social and literary history. Conducted in Spanish.

SPAN 326 Spanish Civilization II (3) A survey of 2000 years of Spanish history, outlining the cultural heritage of the Spanish people, their great men, traditions, customs, art, and literature, with special emphasis on the interrelationship of social and literary history. Conducted in Spanish.

SPAN 346 Latin American Civilization I (3) A survey of the cultural heritage of the Latin American peoples from the Pre-Columbian Period to independence. Hispanic and other European influences. Conducted in Spanish.

SPAN 347 Latin American Civilization II (3) A survey of the cultural heritage of the Latin American peoples from independence to the present. Hispanic and other European influences. Conducted in Spanish.

SPAN 356 Practicum in Translation III (3) Prerequisite: SPAN 317 or permission of instructor. Translation of descriptive and narrative texts into Spanish or English.

SPAN 357 Practicum in Translation IV (3) Prerequisite: SPAN 356 or permission of instructor. Translation into Spanish or English of texts limited to the dialog form.

SPAN 378 Pro-seminar in the Hispanic Literatures (3) Prerequisite: SPAN 321-322 (for Spanish topic); SPAN 323-324 (for Spanish-American topic). May be repeated to a maximum of six credits, with change of topic.

SPAN 399 Independent Study in Spanish (1-3) Prerequisite permission of instructor. Specific readings in literature under the supervision of a faculty member of the department. Repeatable to a maximum of three credits.

SPAN 401 Advanced Composition (3) Exercises in practical stylistics, with special emphasis on idiomatic and syntactic structures.

SPAN 402 Advenced Composition (3) Exercises in practical stylistics, with special emphasis on idiomatic and syntactic structures.

SPAN 404 Oral Practice For Non-native Teachers of Spanish I (3) Prerequisite: consent of instructor. Development of fluency in Spanish with stress on correct sentence structure, pronounciation and idiomatic expression.

SPAN 405 Oral Practice For Non-native Teachers of Spanish II (3) Prerequisite: SPAN 404, a continuation of SPAN 404.

SPAN 408 Great Themes of the Hispanic Literatures (3) Pervading themes in the literature of Spain or Spanish-America. Each theme will be announced when the course is offered.

SPAN 409 Great Themes of the Hispanic Literatures (3) Pervading themes in the literature of Spain or Spanish-America. Each theme will be announced when the course is offered.

SPAN 410 Literature of the Middle Ages (3) Spanish literary history from the eleventh through the fifteenth century. Reading of representative texts. This course covers until 1350.

SPAN 411 Literature of the Middle Ages (3) Spanish literary history from the eleventh through the fifteenth century. Reading of representative texts. This course covers from 1350 to 1500.

SPAN 412 The Romancero (3) Origin, nature and influence. Extensive reading in each of the respective sub-genres.

SPAN 416 Practicum in Translation V (3) Prerequisite: SPAN 357 or permission of instructor. Translation of complete literary texts from Spanish into English. Presentation and comparison of special problems encountered in individual projects.

SPAN 417 Practicum in Translation VI (3) Prerequisite: SPAN 416 or permission of instructor. Translation of complete literary texts from Spanish into English. Evaluation of different renditions of the originals. Problems of interpretation and literary analysis, structure and criticism.

SPAN 418 Hispanic Literature in Translation (3) May be repeated to a maximum of six credits, with change of topic.

SPAN 420 Poetry of the 16th Century (3) Prerequisite: SPAN 321 or equivalent. Selected readings and literary analysis.

SPAN 421 Prose of the 16th Century (3) Prerequisite: SPAN 321 or equivalent. Selected readings and literary analysis.

SPAN 424 Drama of the Sixteenth Century (3) From the earliest autos and pasos, the development of Spanish drama anterior to Lope de Vega, including Cervantes.

SPAN 430 Cervantes: Don Quijote (3) Prerequisite: SPAN 321 or equivalent.

SPAN 431 Cervantes: Novelas Ejemplares and Entremeses (3) Prerequisite: SPAN 321 or equivalent.

SPAN 434 Poetry of the 17th Century (3) Prerequisite: SPAN 321 or equivalent. Selected readings, literary analysis, and discussion of the outstanding poetry of the period, in the light of the historical background.

SPAN 435 Prose of the 17th Century (3) Prerequisite: SPAN 321 or equivalent. Selected readings, literary analysis, and discussion of the outstanding prose of the period, in the light of the historical background.

SPAN 436 Drama of the Seventeenth Century (3) Devoted to Lope de Vega, dramatic theory and the Spanish stage.

SPAN 437 Drama of the Seventeenth Century (3) Drama after Lope de Vega to Calderon de la Barca and the decline of the Spanish theater.

SPAN 440 Literature of the Eighteenth Century (3) Traditionalism, Neo-Classicism, and Pre-Romanticism in prose, poetry, and the theater: esthetics and poetics of the enlightenment.

SPAN 441 Literature of the Eighteenth Century (3) Traditionalism, Neo-Classicism, and Pre-Romanticism in prose, poetry, and the theater; esthetics and poetics of the enlightenment.

SPAN 448 Special Topics in Latin American Civilization (3) An intensive study of a selected topic related to Latin American civilization. This course may be taken no more than twice. Conducted in Spanish.

SPAN 449 Special Topics in Spanish Civilization (3) An intensive study of a selected topic related to Spanish civilization. Repeatable to a maximum of six credits if content differs.

SPAN 452 The Romantic Movement in Spain (3) Poetry, prose and drama of the Romantic and Post-Romantic periods.

SPAN 454 Nineteenth Century Fiction (3) Significant novels of the nineteenth century.

SPAN 456 Nineteenth Century Drama and Poetry (3) Significant dramas and poetry of the Realistic Period.

SPAN 460 The Generation of 1898 and Its Successors (3) Authors and works of all genres of the generation of 1898 and those of the immediately succeeding generation.

SPAN 461 The Generation of 1898 and Its Successors (3) Authors and works of all genres of the generation of 1898 and those of the immediately succeeding generation.

SPAN 462 Twentieth Century Drama (3) Significant plays of the twentieth century.

SPAN 464 Contemporary Spanish Poetry (3) Spanish poetry from the generation of 1927 to the present.

SPAN 466 The Contemporary Spanish Novel (3) The novel and the short story from 1940 to the present.

SPAN 468 Modernism and Post-Modernism in Spain and Spanish-America (3) A study of the most important works and authors of both movements in Spain and Spanish-America.

SPAN 469 Modernism and Post-Modernism in Spain and Spanish-America (3) A study of the most important works and authors of both movements in Spain and Spanish-America.

SPAN 480 Spanish-American Essay (3) A study of the socio-political contents and aesthetic qualities of representative works from the colonial to the contemporary period.

SPAN 481 Spanish American Essay (3) A study of the socio-political contents and aesthetic qualities of representative works from the colonial to the contemporary period, with emphasis on the essay of the twentieth century.

SPAN 488 Spanish-American Fiction (3) Representative novels and/or short stories from the Wars of Independence to the present or close analysis of major contemporary works. Subject will be announced each time course is offered.

SPAN 489 Spanish-American Fiction (3) Representative novels and/or short stories from the Wars of Independence to the present or close analysis of major contemporary works. Subject will be announced each time course is offered.

SPAN 491 Honors Reading Course: Poetry (3) Supervised reading to be taken by students admitted to the honors program or upon consultation with the instructor.

SPAN 492 Honors Reading Course: Novel (3) Supervised reading to be taken by students admitted to the honors program or upon consultation with the instructor.

SPAN 493 Honors Reading Course: Drama (3) Supervised reading to be taken by students admitted to the honors program or upon consultation with the instructor.

SPAN 496 Honors Seminar (3) Required of all students in the honors program. Other students will be admitted on special recommendation. Conducted in Spanish. Discussion of a central theme with related investigation by students.

SPAN 498 Spanish-American Poetry (3) Main trends, authors and works from the conquest to Ruben Dario.

SPCH — Speech

SPCH 100 Basic Principles of Speech Communication (3) Credit will be granted for only one of the following: SPCH 100 or SPCH 107. Prerequisite for advanced speech courses. A study of oral communication principles, including verbal and nonverbal language, listening, group dynamics, and public speaking. Emphasis in this course is upon the application of these principles to contemporary problems and upon the preparation of different types of oral discourse.

SPCH 107 Technical Speech Communication (3) Credit will be granted for only one of the following: SPCH 100 or SPCH 107. A study of oral communication as it is part of technical fields. Emphasis in this course is on the principles and techniques of interviewing, group discussion, listening and informative and persuasive briefings and speeches.

SPCH 125 Introduction to Interpersonal Communication (3) Concepts of interpersonal communication including perception, language and meaning, nonverbal communication, listening and feedback.

SPCH 200 Advanced Public Speaking (3) Prerequisite: SPCH 100 or SPCH 107 or permission of department. Rhetorical principles and models of speech composition in conjunction with the preparation and presentation of specific forms of public speaking.

SPCH 220 Small Group Discussion (3) Principles, methods and types of interaction occurring in small groups with an emphasis on group discussion and decision-making.

SPCH 222 Interviewing (3) Prerequisite: permission of department. Speech principles and practices basic to recognized types of interviews, giving special attention to behavioral objectives and communication variables involved in the process of interviewing.

SPCH 230 Argumentation and Debate (3) A study of the fundamental principles of reasoning, analysis, and evidence preparation of debate briefs and presentation of standard academic debate.

SPCH 324 Communication and Gender (3) The creation of images of male and female, and masculine and feminine through communication, the differences in male and female communication behaviors and styles, and the implications of those images and styles for male-female transactions.

SPCH 330 Argumentation in Society (3) Contemporary theories of argument with special emphasis on the role of argument in dispute resolution and social influence.

SPCH 340 Oral Interpretation (3) Examination of ways that performance studies can be used to make critical responses to forms of literature.

SPCH 350 Foundations of Communication Theory (3) Theories of human communication including intrapersonal, interpersonal, language behavior, nonverbal communication, small group communication and mass media.

SPCH 360 The Rhetoric of Black America (3) An historical-critical survey of the rhetoric of Black Americans from the colonial period to the present.

SPCH 383 Urban Communication (3) A study of communication variations in the urban setting with emphasis on communication problems encountered in ethnic relations. Strategies for improving communication.

SPCH 399 Honors Thesis (3) Prerequisite: permission of department.

SPCH 400 Research Methods in Speech Communication (3) Prerequisite: introductory course in statistics or permission of department. Recommended: SPCH 350. Philosophy of science, role of theory, research ethics, empirical research methods (measurement, sampling, design analysis).

SPCH 401 Foundations of Rhetoric (3) Prerequisite: SPCH 200. Principles and approaches to the theory, criticism, and historical understanding of rhetorical discourse.

SPCH 402 Communication Theory and Process (3) Recommended: SPCH 350. Philosophical and conceptual analysis of speech communication theories.

SPCH 420 Theories of Group Communication (3) Prerequisite: SPCH 400 or permission of department. Current theory, research and techniques regarding small group process. Group dynamics, leadership and decision making.

SPCH 423 Communication Processes in Conferences (3) Prerequisite: one course in speech communication or permission of department. Group participation in conferences; methods of problem solving; semantic aspects of language; and the function of conferences in business, industry and government settings.

SPCH 424 Communication in Complex Organizations (3) Prerequisite: SPCH 400 or permission of department. Structure and function of communication within organizations: organizational climate and culture; information flow; networks and role relationships.

SPCH 435 Theories of Interpersonal Communication (3) Prerequisite: SPCH 400 or permission of department. Major theoretical approaches and research trends in the study of interpersonal communication.

SPCH 450 Classical and Medieval Rhetorical Theory (3) Prerequisite: SPCH 401 or permission of department. A systematic inquiry into the rhetorical theory of the classical and medieval periods. Aristotle, Cicero, Quintilian, Marianus Capella, Augustine, Alberic of Monte Cassino, Geoffrey of Vinsauf, and Robert of Basevorn.

SPCH 451 Renaissance and Modern Rhetorical Theory (3) Prerequisite: SPCH 450 or permission of department. Survey of rhetorical theory in the renaissance and modern periods--especially in Britain. Wilson, Sherry, Ramolde, Ramus, Bacon, Campbell, Blair, and Whately.

SPCH 453 Rhetorical Foundations of American Socio-Political Life (3) Rhetorical potential of languages, forms, and strategic discourse to create, perpetuate, and alter patterns of political and cultural behavior. The influence of historical and contemporary American political and cultural discourse on American society.

SPCH 455 Speechwriting (3) Prerequisite: SPCH 401 or permission of department. Rhetorical principles of speech composition through study of model speeches and through a practicum in speech writing. Emphasis on the application of research in speech writing to various forms and styles of speeches.

SPCH 460 American Public Address 1635-1900 (3) Prerequisite: SPCH 401 or permission of department. Rhetorical development of major historical movements and influential speakers from 1635-1990. Emphasis on religious movements, the American Revolution, rhetoric leading up to the Civil War, and the rhetoric of the imperialist and populist movements.

SPCH 461 American Public Address in the 20th Century (3) Prerequisite: SPCH 401 or permission of department. Rhetorical movements and influential speakers from 1900 to the present. Focus on the themes and rhetorical strategies that characterize contemporary rhetorical discourse.

SPCH 462 British Public Address (3) Prerequisite: SPCH 401 or permission of department. A biographical, textual and critical-rhetorical study of select British speakers and their influence.

SPCH 470 Theories of Listening (3) Listening process with emphasis on functional analysis of listening behavior.

SPCH 471 Public Communication Campaigns (3) Prerequisite: SPCH 200 or permission of department. Diffusion theory and its implications for public communication campaigns.

SPCH 472 Theories of Nonverbal Communication (3) Prerequisite: SPCH 400 or permission of department. Nonverbal communication in human interaction theory and research on proxemics, kinesics and paralanguage as expression of relationship, affect and orientation within and across cultures.

SPCH 475 Theories of Persuasion (3) Prerequisite: SPCH 400 or permission of department. Bases of persuasion with emphasis on recent experimental developments in persuasion.

SPCH 476 Theories of Language and Communication (3) A theoretical investigation of speech as significant behavior. Language, linguistic knowledge, meaning, intention, and understanding, as they relate to communication and communication competence.

SPCH 477 Discourse Analysis (3) Concepts of textual and discourse analysis applied to speech situations.

SPCH 478 Speech Communication Colloquim (1) Current trends and issues in the field of speech communication, stressing recent research methods. Recommended for senior and graduate student majors and minors in speech communication. Repeatable to a maximum of 4 hours.

SPCH 482 Interculturel Communication (3) Prerequisite: SPCH 400 or permission of department. The major variables of communication in an intercultural context: cultural, racial and national differences, stereotypes; values, cultural assumptions, and verbal and nonverbal channels.

SPCH 488 Speech Communicetion Internship (1-3) Prerequisite: permission of department. Practical career experience with a speech communication professional for the speech communication major. Repeatable to a maximum of six credits.

SPCH 489 Topical Research (1-3) Prerequisite: permission of department. Individualized research projects conducted with a faculty sponsor. Repeatable to a maximum of six credits.

SPCH 498 Seminar (3) Prerequisites: senior standing and consent of instructor. Present-day speech research.

STAT — Statistics and Probability

STAT 100 Elementary Statistics and Probability (3) Prerequisite: MATH110 or exemption from MATH 110 by a satisfactory score on a departmental placement examination. Simplest tests of statistical hypotheses, applications to before-and-after and matched pair studies. Events, probability, combinations, independence. Binomial probabilities, confidence limits. Random variables, expected values, median, variance. Tests based on ranks. Law of large numbers, normal approximation. Estimates of mean and variance. (Students who have completed MATH 111 or any MATH or STAT course with a prerequisite of MATH 141 may not obtain credit for STAT 100.)

STAT 250 Introduction to Statistical Models (3) Prerequisite: MATH 220 or equivalent. Applications of basic ideas of probability and statistics to epidemics, genetics, learning models, population growth, queuing, reliability and traffic problems. Topics include random variables, distributions, expectations, Markov chains, renewals, hypotheses testing and estimation, with emphasis on discrete models and intuitive approach. Choice of applications can vary according to class interest.

STAT 400 Applied Probability and Statistics I (3) Prerequisite: MATH 141. Random variables, standard distributions, moments, law of large numbers and central limit theorem. Sampling methods, estimation of parameters, testing of hypotheses.

STAT 401 Applied Probability and Statistics II (3) Prerequisite: STAT 400. Point estimation - sufficient, unbiased, and consistent estimators. Interval estimation. Minimum variance and maximum likelihood estimators. Testing of hypotheses. Regression correlation and analysis of variance. Sampling distributions. Sequential tests, elements of non-parametric methods.

STAT 410 Introduction to Probability Theory (3) Prerequisites: MATH 240 and MATH 241. Probability and its properties. Random variables and distribution functions in one and several dimensions. Moments. Characteristic functions. Limit theorems.

STAT 411 Introduction to Stochastic Processes (3) Prerequisite: STAT 250 or 400 or equivalent. Elementary stochastic processes. Renewal process, random walks, branching process, discrete Markov chains, first passage times, Markov chains with a continuous parameter, birth and death processes. Stationary processes.

STAT 420 Introduction to Statistics (3) Prerequisite: STAT 410 or equivalent. Point estimation, sufficiency, completeness, Cramer-Rao inequality, maximum likelihood. Confidence intervals for parameters of normal distribution. Hypotheses testing, most powerful tests, likelihood ratio tests. Chi-square tests, analysis of variance, regression, correlation. Nonparametric methods.

STAT 421 Elements of Statistical Inference (3) Prerequisite: STAT 420 or equivalent. Rank tests, confidence and tolerance intervals, Kolmogorov-Smirnov tests. Sequential analysis, multivariate analysis. Decision theory. Bayesian and minimax procedures. Sampling theory.

STAT 440 Sampling Theory (3) Prerequisite: STAT 401 or STAT 420, or consent of the instructor. Simple random sampling. Sampling for proportions. Estimation of sample size. Sampling with varying probabilities of sampling. Sampling stratified, systematic, cluster, double, sequential, incomplete.

STAT 450 Regression and Variance Analysis (3) Prerequisite: STAT 401 or 420. One, two, three and four-way layouts in analysis of variance, fixed effects models, linear regression in several variables, Gauss-Markov-Theorem, multiple regression analysis, experimental designs.

STAT 460 Applied Nonparametric Statistics (3) Prerequisite: a statistics course other than STAT 100. Review of basic statistical ideas. Sign tests and ranking methods for one and two samples, one-way layout, two-way layout, correlation and regression, including significance tests, nonparametric confidence intervals and robust point estimates. Goodness-of-fit, contingency tables, exact and Chi-square test for homogeneity and independence. Techniques illustrated using data from social biological and behavioral sciences.

STAT 464 Introduction to Biostatistics (3) Prerequisite: one semester of calculus and junior standing. Probabilistic models. Sampling. Some applications of probability in genetics. Experimental designs. Estimation of effects of treatment. Comparative experiments. Fisher-Irwin test. Wilcoxon tests for paired comparisons. Not acceptable for credit towards degrees in mathematics or statistics.

STAT 498 Selected Topics in Statistics (1-6) Prerequisite: permission of the instructor. Topics of special interest to advanced undergraduate students will be offered occasionally under the general guidance of the MATH/STAT major committee. Students register for reading in statistics under this number. Repeatable to a maximum of 16 credits.

TEXT — Textiles

TEXT 105 Introduction to Textiles (3) An introduction to textile consumer products; their structure and properties, with emphasis on the structure of apparel fabrics.

TEXT 205 Textile Materials and Performance (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: TEXT 105. Recommended prior or concurrent registration in CHEM 103. Analysis of the structural components of consumer textile materials with emphasis on yarns, fibers, dyes and finishes as they relate to textile performance in consumer use.

TEXT 221 Apparel I (3) Two hours of lecture and two hours of laboratory per week. A study of the fundamental principles and processes of pattern design and apparel construction. The relation of commercial patterns and construction techniques to apparel design problems.

TEXT 222 Apparel II (3) Prerequisite: TEXT 221. Apparel design through the flat pattern method. Development of portfolios as well as full scale fashion design projects from original patterns. Emphasis on successful integration of pattern design with construction processes in contemporary fabrics.

TEXT 298 Special Topics (1-3) Prerequisite: permission of department. Repeatable to 6 credits if content differs. Topics of special interest to lower division students under the guidance of department faculty.

TEXT 300 Professional Development (1) A series of lectures focused on career options, career preparation and professional development for majors in textiles and consumer economics.

TEXT 305 Textile Materials: Evaluation and Characterization (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: TEXT 205. An investigation of the behavior of textile materials in relation to environmental factors and conditions of service influencing performance, comfort and aesthetics. Laboratory experience provides an opportunity to explore a variety of textile materials and methods of evaluation.

TEXT 345 History of Costume I (3) The development of ancient and Non-Western forms of dress, including Greek, Roman, Early European, Middle Eastern, Far Eastern and African costume. Emphasis on clothing as an expression of culture and as an indicator of cultural change.

TEXT 347 History of Costume II (3) The development of European and American dress from the Renaissance to the present, relating the history of costume to changing technology, social attitudes and trends in the popular and fine arts.

TEXT 355 Textile Furnishings (3) Prerequisite: TEXT 150. The performance of textile furnishings, including both the residential and contract-commercial markets. The selection, material properties, specifications, use and care of textile furnishings. Carpet and floor coverings, upholstered furniture, draperies and window coverings, wall coverings, bedding and mattresses, and domestic textiles.

TEXT 363 History of Textiles (3) A study of historic and contemporary fibers and fabrics. The analysis of designs and techniques of decorating fabrics and the relationship of textiles to the aesthetic and developmental cultures of society.

TEXT 365 Fashion Merchandising (3) Prerequisite: permission of department. Analysis of fashion trends and their effect on retail merchandising. Emphasis on the buying and selling process, including the calculations necessary to plan and estimate seasonal purchases, mark-ups, turnover, open-to-buy, markdowns and stock/sales ratios.

TEXT 375 Economics of the Textile and Apparel Industry (3) Prerequisites: ECON 201, and ECON 203. Trends in the production and consumption of textiles and apparel, economic analysis of the textile and apparel industries, factors affecting changes in output, price, location and market structure.

TEXT 385 Junior Honors Seminar (1) Junior standing in departmental honors program. Readings, reports and discussion of selected topics.

TEXT 388 Field Work and Analysis in Textiles (3-12) Prerequisite: permission of department. For TEXT majors only. Repeatable to 12 credits. Supervised, professional, field work experience in retailing, industry or government. A seminar and a written critique of the field work experience will be required to relate formal academic study to student work experiences. Students must apply a semester in advance.

TEXT 400 Research Methods (3) Prerequisite: MATH 110 or MATH 115. Not open to students who have completed CNEC 400 or BMGT 230. Research methodology in textiles and consumer economics, with particular emphasis on the application of statistical concepts and techniques to the analysis of data from the areas of textiles and consumer economics.

TEXT 420 Apparel Design: Draping (3) Six hours of laboratory per week. Prerequisites: APDS 101 or ARTT 100, and TEXT 222. Recommended: ARTT 110. Students explore pattern design through draping on the human form. Emphasis is on the interrelationship between material, design and form.

TEXT 425 Advanced Apparel Design (3) Six hours of laboratory per week. Prerequisites: APDS 101 or ARTT 100; TEXT 305 and TEXT 222. The integration of apparel design skills and principles in solving problems in apparel production, merchandising, and in clothing for special needs.

TEXT 441 Clothing and Human Behavior (3) Prerequisites: PSYC 100, and SOCY 100. An exploration of socio-psychological approaches to the study of clothing in relation to human behavior. Social and psychological theories will be examined as possible framework for the study and investigation of clothing.

TEXT 452 Textile Science: Chemical Structures and Properties of Fibers (3) Two hours of lecture and four hours of laboratory per week. Prerequisite: CHEM 104 or permission of department. The chemical structure, properties and reactions of the major classes of natural and man-made fibers. The relationship between molecular structure and physical properties of fibers and fabrics. Laboratory includes chemical identification of fibers, preparation of selected fibers and examination of chemical reactions and properties of fibers.

TEXT 454 Textile Science: Finishes (3) Two hours of lecture and four hours of laboratory per week. Prerequisite: TEXT 452 or permission of department. A study of the chemical reactions and mechanisms involved in imparting water repellance, crease resistance and crease recovery properties, shrink-resistance, flame resistance, soil-release properties and moth and mildew resistance to textile materials. Properties of the finished material which affect its end-use. The application of finishes, identification of finishes and a study of the properties of finished fabrics.

TEXT 456 Textile Science: Dyes and Dye Application (3) Two hours of lecture and four hours of laboratory per week. Prerequisite: TEXT 452 or permission of department. Examination of the principles and techniques of dyeing and printing of textile materials. Properties of the finished products which affect their end-use.

TEXT 470 Textile and Apparel Marketing (3) Prerequisite: BMGT 350 or permission of department. Analysis of the production, pricing, distribution, and promotion of fibers, yarns, fabrics and textile products by end use. Identification of target markets and development of marketing strategies. Application of case study method to problems of textile and apparel firms.

TEXT 488 Senior Honors Thesis (1-4) For undergraduate students in the departmental honors program only. An independent literary, laboratory or field study, conducted throughout the student's senior year. Student should register in both fall and spring.

TEXT 498 Special Studies (2-4) Independent study by an individual student or by a group of students in advanced work not otherwise provided in the department. Students must prepare a description of the study they wish to undertake. The plan must be approved by the faculty directing the study and the department chairman.

THET — Theatre

THET 110 Introduction to the Theatre (3) Introduction to the people of the theater, actors, directors, designers and backstage personnel. The core and characteristics of a play script, theatrical forms and styles, and theater history.

THET 111 Making Theatre: Art and Scholarship (3) Systematic introduction to the tools and techniques used by theatre practitioners.

THET 120 Acting I (3) Prerequisites: THET 110 and THET 111. Basic principles of acting techniques. Exercises structured to develop the student's concentration, imagination, sense and emotional memory. Textual analysis, character analysis and scene study, and the application of these techniques to character portrayal through performance of short scenes.

THET 125 Creative Expression (3) For the non-theater arts major. Exploration of creativity through self-expression. Basic techniques of pantomime, improvisation, role playing, communicative and concentrative skills through movement, theater games and group dynamics.

THET 170 Stagecraft (3) Prerequisites: THET 110; and THET 111. A survey of the fundamentals of theatrical productions, with emphasis in the construction of scenery. Practice work on University Theater and experimental theater productions.

THET 185 Makeup (2) Prerequisite: permission of department. The theory and practice of stage makeup covering character analysis, facial anatomy, application of makeup and period styles in theatrical makeup.

THET 221 Speech For the Stage (3) Development of the vocal techniques required for theatrical production including projection, resonance, and character voices. The study and acquisition of the diction of the American stage.

THET 273 Scenographic Techniques (3) Prerequisite: THET 170 or permission of department. An analysis of the graphic approaches used in various stages of planning and execution of a setting for the theater. Study of drafting techniques, presentational conventions, and scene painting techniques unique to the theater.

THET 283 Costume Crafts (3) Study and practical experience in garment construction and related costume crafts as used in theater costume design. Emphasis on celastic armour, jewelry, hat-making and other related theater costuming crafts.

THET 310 The American Theatre (3) An analysis of the theatre people, plays, events, and social forces which shaped an evolution from the colonial beginnings of artistic dependence on England to the uniquely American theatre of today.

THET 311 Play Production (3) A practical study of the various elements and procedures necessary for production of plays for public performance.

THET 320 Acting II (3) Prerequisites: THET 120, and THET 221, and permission of department. THET 221 may be taken concurrently with THET 320. Continuation of THET 120. Emphasis on the blueprinting of character development and portrayal for a full length play.

THET 330 Play Directing I (3) Prerequisites: THET 120, and THET 170, and at least three semester hours of THET 479, and permission of department. A lecture-laboratory course dealing with the techniques of coordination, designing and guiding the production of a script through to performance. Study and practice in stage composition, movement, pacing, script and character analysis, and rehearsal routines. Emphasis on methods of communicating a script to an audience.

THET 350 American Musical Comedy (3) The evolution of musical comedy through opera to early American extravaganzas and minstrels to the musicals of the 1920's and 1930's. The development and highlights of the form since 1940. The function and form of the libretto, music and lyrics, and the roles of the creative personnel of a musical production. Workshops in performance skills.

THET 372 Stage Property Design (3) Prerequisite: permission of department. Materials and techniques for the design and execution of stage properties with special emphasis on period research, special materials, and special effects.

THET 375 Scenic Design I (3) Prerequisite: permission of department. Design-oriented theatre majors are expected to also have credit for THET 273. A study of design theory and style. Methods and techniques of coordination on all elements of scenic design for theatre.

THET 415 Playwriting (3) The writing of a one-act and a full-length play.

THET 420 Acting III (3) Prerequisites: THET 120, and THET 221, and THET 320, and permission of department. Emphasis on the philosophical basis and techniques necessary for acting modern realistic drama and acting period style dramas. In-depth study of Stanislavski System and application of those techniques toward performance in scenes. Examination and application of the techniques necessary for the preparation and performance of an acting score for performing Shakespeare. Improvisation. Required attendance at live theatre productions.

THET 421 Movement for Actors (3) Prerequisite: permission of department. Studies and intensive exercises to aid the acting student in understanding physical and emotional energy flow, body placement, alignment and body image. The physical aspects of character.

THET 429 Actor's Studio (1-3) Prerequisite: permission of department. Participation in dramatic roles executed under faculty supervision in the department's productions. Eligible students must make commitments and plan performances with course instructor during pre-registration. Repeatable to a maximum of six credits.

THET 430 Play Directing II (3) Prerequisites: THET 330 or permission of department. Discussion of the preparation procedures and rehearsal practices necessary for the presentation of a variety of theatrical styles and forms. Emphasis on understanding the relationship between the director, the actor, the script and the audience. A series of student directed scenes supplemented by attendance at theatre productions.

THET 451 Musical Comedy Workshop (3) Prerequisite: permission of department. Development of the ability to move, act and express through the media of lyric and music.

THET 460 Theatre Management I (3) Prerequisites: [THET 110 and THET 111] or [permission of department]. The practical tools of theatre management: production philosophies, selecting and balancing a season, tickets and box office procedures, budgeting, graphic arts production, advertising, publicity and other promotional devices.

THET 461 Theatre Management II (3) Prerequisite: THET 460 or permission of department. Case studies, discussions, lectures and projects concerning advance theatre management decision making and administration, including such areas as personnel relations, contract negotiations, theatrical unions, fund raising, touring, audience development and public relations.

THET 471 Scenic Design II (3) Prerequisites: [THET 273 and THET 375] or [permission of department]. Study of period styles and techniques in scenic design. Emphasis on individual projects and multi-use theatres.

THET 473 Scene Painting (3) Prerequisite: permission of department. Scene painting techniques and materials. Three-dimensional realistic scenery and non-realistic two-dimensional backdrops. Individual projects.

THET 474 Stage Management (3) Prerequisites: THET 170 or permission of department. Intensive practical study of the techniques and procedures for stage management. Independent projects dealing with the production of shows.

THET 475 Stage Decor (3) Prerequisites: THET 170 or permission of department. A study of environmental decor, ornaments and properties through the ages and their practical reproduction for a theatrical production.

THET 476 Lighting Design I (3) Prerequisite: THET 170 and permission of department. THET 273 recommended. A study of the theories of electrification, instruments, design, color, and control for stage and television. Brief survey of sound for the theatre. Practical work on productions.

THET 477 Lighting Design II (3) Prerequisite: THET 476 and permission of department. Study of history and theory of lighting design. Design exercises in proscenium, in-the-round, thrust, outdoor pageant, circus, concert, spectacle, dance and television lighting. A survey of lighting companies and equipment and architectural lighting.

THET 479 Theater Workshop (1-3) Prerequisite: permission of department. Supervised participation in the areas of assistant directing, scenic design and properties, costuming or make-up, lighting, technical theatre, stage management, sound. Repeatable to a maximum of six credits if content differs.

THET 480 Stage Costume History and Design I (3) Basic principles of theatre costume design and introduction to rendering skills. Emphasis on development of design conception, unity, character statement, basic clothing design and period style adaptation.

THET 481 Stage Costume History and Design II (3) One lecture and six hours of laboratory per week. Prerequisite: THET 480 and permission of department. An advanced study of costume design and interpretation leading to understanding and facility in design of stylized productions. Emphasis on design for musical comedy, dance theatre, opera and various non-traditional forms of theatre production.

THET 486 Stage Costume Construction I (3) Study and practical experience in garment construction and related costume crafts as used in theatre costume design. Flat pattern development, textiles, theatrical sewing techniques and organization of the costume construction process.

THET 487 Stage Costume Construction II (3) Prerequisite: permission of department. Study and practical experience in the construction of stage costumes, props and accessories. Pattern development by draping, millinery, corsets, masks, jewelry, armor and period footwear.

THET 490 History of the Theatre I (3) Evolution of the theatre from primitive origins, through the early Renaissance with emphasis on playwrights and plays, theatre architecture and decor, and significant personalities. Extensive use of graphic material, play reading, related theatre-going.

THET 491 History of the Theatre II (3) A continuation of THET 490 beginning with the 16th century and progressing into the 20th, examining the late Renaissance, Elizabethan, Restoration, 17th to 19th century European, and early American theatres. Emphasis on dramatic forms and styles, theatre architecture and decor, and significant personalities. Extensive use of graphic material, play reading, related theatre-going.

THET 495 History of Theatrical Theory and Criticism (3) The development of theatrical theory and criticism from the Greeks to the modern theorist. The philosophical basis of theatre as an art form. Important theorists and the practical application of their theories in either play scripts or theatrical productions. Required attendance at selected live theatre productions.

THET 499 Independent Study (1-3) Prerequisite: permission of department. An independent study course in which each student completes an assigned major theatre project under close faculty supervision. Projects may culminate with term papers, scenic or costume designs, or a stage production. Repeatable to a maximum of six credits.

UMEI — Maryland English Institute

UMEI 001 English as a Foreign Language: Beginning (0) Twenty five hours per week. Intensive course for the non-native speaker of English who has little or no previous knowledge of English. Focus on the rapid acquisition of the basic features of English grammar and pronunciation and on speaking and understanding American English; reading and writing appropriate to the level will be included. Special fee required for this course. This course does not carry credit towards any degree at the University and does not count in the retention plan.

UMEI 002 English as a Foreign Language: Intermediate I (0) Twenty-five hours per week. Intensive course for the non-native speaker of English who has had some previous instruction in English. Emphasis on improving listening and speaking skills; on mastering intermediate grammatical structures; and on expanding vocabulary. Includes practice in reading and writing appropriate to the level. Special fee required for this course. This course does not carry credit towards any degree at the University and does not count in the retention plan.

UMEI 003 English as a Foreign Language: Intermediate II (0) Twenty-five hours per week. Intensive course for the non-native speaker of English who has mastered the essential structures of English grammar. Emphasis on improving communicative skills for a wide range of linguistic situations; on rapid expansion of vocabulary; and on improving reading comprehension and basic writing skills. Special fee required for this course. This course does not carry credit towards any degree at the University and does not count in the retention plan.

UMEI 004 English as a Foreign Language: Intermediate III (0) Twenty-five hours per week. Intensive course for the non-native speaker of English who has a good command of the basic features of spoken and written English. Emphasis on refining speaking and listening skills; on improving reading speed and comprehension of academic texts; and on developing writing skills for academic courses. Special fee required for this course. This course does not carry credit towards any degree at the University and does not count in the retention plan.

UMEI 005 Advanced English as a Foreign Language (6) Twelve hours per week. Semi-intensive course for the nearly proficient non-native speaker of English needing additional language instruction prior to undertaking full-time academic study. Speaking and listening skills improvement of reading speed and comprehension, and development of writing skills with special emphasis on research papers and use of the University library. Special fee required for this course. This course does not carry credit towards any degree at the University and does not count in the retention plan.

UMEI 006 English Pronunciation (1) Individualized class for the non-native speaker of English. Diagnosis of individual pronunciation problems. Practice in the correct pronunciation of English sounds and improvement of ability to speak English with proper stress and intonation patterns. Special fee required for this course. This course does not carry credit towards any degree at the University and does not count in the retention plan.

UMEI 007 Workshop for Foreign Teaching Assistants (1) For graduate teaching assistants who are not native speakers of English and who need to improve their ability to instruct in English. English grammar and pronunciation. Cultural cues to enhance classroom management and basic instructional techniques. Oral presentations keyed to each student's discipline will be video-taped for individual review. Special fee. This course does not carry credit towards any degree at the University and does not count in the Retention Plan.

UMEI 008 Advanced Oral Communication Skills (1) Enrollment by permission of Director. A four-hour per week course for advanced non-native speakers of English. Practice in speaking skills relevant to the academic situation. Improvement of speaking skills for various classroom activities such as participating in discussions, making appointments with professors, asking for information and presenting oral reports. Special fee required for this course. This course does not carry credit towards any degree at the University and does not count in the retention plan.

URBS — Institute for Urban Studies

URBS 100 Introduction to Urban Studies (3) Contemporary urban patterns, trends and problems. Major urban issues, such as population, the economy, land use, housing, neighborhood development, fiscal and unemployment crises, and social, environmental, and political controversies of metropolitan areas. Urbanization patterns and policies internationally.

URBS 210 Behavioral and Social Dimensions of the Urban Community (3) Urbanism, urbanization, and urban demography; study of the institutional framework of urban areas, including administration, politics, finances, and communications; human services and social issues.

URBS 220 Environmental and Technological Dimensions of the Urban Community (3) The impact of environment and technology on urban living. The metropolis as a physical structure, including its housing, land use and geography; on the metropolis as a physical system, including its environment, engineering and utilities; and on public policy issues of technology in the urban areas.

URBS 350 Quantitative Methods in Urban Studies (3) Prerequisite: two of URBS 100, 210, or 220; or permission of instructor. A practical introduction to urban data sourses and measurement, basic descriptive statistics, urban data collection, sampling and questionnaire design, field techniques, plan use, introduction to computer use and data presentation.

URBS 397 Honors Independent Reading (3) Prerequisite: admission to honors program in URBS or other departments. Directed reading in contemporary urban studies.

URBS 399 Independent Study in Urban Topics (3) Prerequisite: permission of instructor or one URBS course. Directed research and study of selected aspects of urban affairs.

URBS 410 The Development of the American City (3) The evolution of the American city and American city planning. Ways in which the interests and ideologies of American city planners have shaped and responded to urban development in the U.S.

URBS 420 Seminar in Urban Literature (3) Prerequisite: two URBS courses or permission of the instructor. The works of several of the major 20th century writers in urban studies. A comparative analysis of the perspectives of these writers on theoretical and substantive urban issues, is a basis for more advanced study in the theory and process of urbanization.

URBS 438 Urban Internship (1-6) Prerequisite: permission of the department. Supervised field training in urban-oriented programs. Emphasized areas of interest are (1) neighborhoods and communities, (2) organizations and agencies, (3) specific programs. The student will be assigned to a specific agency or project and will be responsible to that agency. Class meetings, written reports, instructor conferences, and a student's critique of his experience are included. Repeatable to a maximum of six credits.

URBS 440 City and Regional Economic Development (3) Prerequisite: URBS 210 and ECON 105, or ECON 201, or ECON 205. Emphasis on urban finance and causes of urban fiscal stress, the spatial patterns of employment and population, urban labor markets, and models of urban and regional growth and decline. Focus on application of economic theory and urban planning techniques to issues of public service delivery, local economic development, and land use planning.

URBS 450 Problems in Urban Law (3) Recommended preparation: six credits in URBS courses. A survey of the urban legal environment and special legal problems of urban governments and public interest lawyers. Problems related to planning, zoning, eminent domain and land use controls, consumer protection in central cities, housing codes and multiple dwelling regulation, public accommodations and civil rights ordinances, defending the indigent, and welfare delivery systems.

URBS 460 Urban and Regional Planning in Developing Countries (3) The theoretical issues of spatial development from a comparative urbanization perspective and analysis of multiple problems facing cities in developing countries. Current government planning policies and interventions.

URBS 470 Management and Administration of Metropolitan Areas (3) Management and administration of local governments in metropolitan areas with emphasis on cities, counties and special districts in urban areas. Urban governmental organizations, management styles and service delivery. Contemporary problems confronting urban local governments.

URBS 480 Urban Theory (3) Contemporary theories of the city as a physical and an institutional system. Urban theory as integration of information involving economic, political, and social dimensions of contemporary cities.

URBS 488 Selected Topics in Urban Studies (1-3) Prerequisite: permission of instructor. Topics of special interest to advanced urban studies students. Repeatable to a maximum of six credits provided subject matter is different.

URBS 498 Honors Seminar in Selected Topics (3) Prerequisite: Admission to honors program in URBS or other departments. Individual reading and research, and group discussion dealing with selected major contemporary urban issues. Philosophy and growth of new towns, emergent forms of urban policy, federal legislation and the cities, citizen attitudes toward metropolitan government, housing abandonment, rehabilitation, and new construction, the urban future; major world capitals; and urbanization in developing nations. May be repeated to a maximum of six credits for credit provided the topics are different.

URBS 499 Honors Thesis (3-6) Prerequisite: admissions to honors program in URBS or other departments. Individual reading and research, and the writing of an original paper on an urban topic of the student's choice under the guidance of a faculty member.

WMST — Women's Studies

WMST 200 Introduction to Women's Studies: Women and Society (3) An interdisciplinary study of the status, roles, and experiences of women in society. Sources from a variety of fields such as literature, psychology, history, and anthropology, focusing on the writings of women.

WMST 250 Introduction to Women's Studies: Women, Art and Culture (3) An exploration of women's creativity. Traditional and alternative women's cultures; art, myth, literature, and theology by women; women's heroic journeys, and emerging feminist art and culture.

WMST 298 Selected Topics in Womens Studies (1-3) Repeatable to a maximum of 6 credits.

WMST 350 Feminist Education Practicum (3) Corequisite: WMST 351 Teaching practicum, providing experience in the facilitation of small sections of lower division introductory survey courses.

WMST 351 Feminist Education Analysis (3) Corequisite: WMST 350 General application of feminist methodology to teaching and communication skills, teaching strategies, motivation, classroom dynamics and knowledge of students' development and learning styles.

WMST 400 Theories of Feminism (3) Prerequisite: WMST 200 or 250, or consent of instructor. A study of feminist theories from an interdisciplinary perspective, including politics, sociology, psychology, anthropology, and philosophy.

WMST 490 Feminist Reconceptualizations (3) Prerequisites: WMST 200 or 250, and 400, or permision of instructor. A synthesis of feminist theory and methodology, focusing on how the diversity of feminist perspectivas affects the development of knowledge, theory, research, and pedagogy.

WMST 498 Special Topics in Women's Studies (1-3) Repeatable to a maximum of 6 credits. Prerequisite: a course on women (ideally WMST 200) or consent of instructor.

WMST 499 Independent Study (1-3) Prerequisite: three credits in women's studies courses and consent of instructor. Research and writing or specific readings on a topic selected by the student, supervised by a faculty member of the Women's Studies Program.

ZOOL — Zoology

ZOOL 181 Life in the Oceans (3) Three lectures per week. Prerequisite: an introductory course in biological principles. Consideration of major groups of animals and plants in various marine environments and man's potential uses and misuses of the ocean. Not accepted for credit towards the zoology major.

ZOOL 201 Human Anatomy and Physiology I (4) Three hours of lecture and one three hour laboratory per week. Prerequisite: BIOL 105 or equivalent. Anatomy and physiology of the skeletal, muscular, neural, endocrine, and sensory systems. Not accepted as credit toward the zoology major.

ZOOL 202 Human Anatomy and Physiology II (4) Three hours of lecture and one three hour laboratory per week. Prerequisites: ZOOL 201 or permission of department. Anatomy and physiology of the cardiovascular, respiratory, immune, digestive, urinary and reproductive systems. Not accepted as credit toward the zoology major.

ZOOL 210 Animal Diversity (4) Two one-hour lectures and two two-hour laboratories per week. A comparative study of the diversity of animal form and function, including analysis of structures and mechanisms which different organisms utilize to cope with similar requirements of life. Not open for credit to students who have credit in ZOOL 293.

ZOOL 211 Cell Biology and Physiology (4) Three lectures and one three-hour laboratory per week. Prerequisite: CHEM 103. Biochemical and physiological mechanisms underlying cellular function. Properties of cells which make life possible and mechanisms by which cells provide energy, reproduce, and regulate and integrate with each other and their environment.

ZOOL 212 Ecology, Evolution and Behavior (4) Three lectures and one three-hour laboratory per week. Fundamental principles underlying the diversity of ecological, evolutionary, and behavioral relationships observed in nature, including the mechanisms of natural selection leading to adaptation of organisms to the environment. Not open for credit to students who have credit in ZOOL 270 OR 271.

ZOOL 213 Genetics (4) Three lectures and one three-hour laboratory/discussion period per week. Prerequisites: one semester of organic chemistry and one semester of a biological science. Composition, transmission, variation, function, and regulated expression of genetic material.

ZOOL 299 Supplemental Study in Zoology (1-3) Prerequisite: consent of department. Research or special study to complement a course taken previously which is not fully equivalent to current departmental requirements. Credit according to work done. Repeatable to a maximum of six credits.

ZOOL 301 Biological Issues and Scientific Evidence (3) Prerequisite: an introductory college level biology course. The process of scientific inquiry in biology, using as models two areas in which scientific data of social importance is subject to widely differing interpretations: (1) evolution vs. creationism, (2) measurement of human intelligence. The provisional nature of scientific truth. Evolution and creation-science viewpoints. Intelligence testing is viewed from a historical perspective of its origins in 19th century craniometry and the subsequent development of intelligence tests.

ZOOL 308 Honors Seminar (1) One hour of discussion per week. Prerequisite: participation in honors program. Guided discussion of topics of current interest. Repeatable to total of four hours credit.

ZOOL 309 Honors Independent Study (1-4) Prerequisite: participation in the honors program. Study of classical material by way of guided independent study and laboratory experiments. Repeatable to a total of 12 hours credit.

ZOOL 318 Honors Research (1-2) Prerequisite: participation in the honors program. A laboratory research problem, required each semester during honors participation and culminating in a honors thesis. Repeatable to a total of eight hours credit.

ZOOL 319 Special Problems in Zoology (1-2) Prerequisites a major in zoology or biological sciences, a minimum of 3.0 GPA in the biological sciences and consent of the instructor. Research or integrated reading in zoology. A student may register several times and receive up to 8 semester hours of credit.

ZOOL 326 Biology of Reproduction (3) Prerequisite an introductory level course in the life sciences, or consent of instructor. The biology of the reproductive system with emphasis on mammals and, in particular on human reproduction. Hormone actions, sperm production, ovulation, sexual differentiation, sexual behavior, contraception, pregnancy, lactation, maternal behavior and menopause.

ZOOL 328 Selected Topics in Zoology (1-4) Lectures, seminars, mini-courses and other special instruction in various zoological subjects. The contents and format of the course change frequently and students may register for it more than once up to a total of six credits.

ZOOL 330 Biological Aspects of Aging (3) Prerequisite a college level course in biology or zoology. A survey of the biological changes occurring in cells, tissues and organs of aging vertebrates. Experimental evidence and current theories of the underlying mechanisms of aging, including both genetic and environmental effects. Not acceptable as credit toward the major in zoology.

ZOOL 346 Human Genetics and Society (3) Prerequisites two college courses in the natural sciences and/or mathematics. For non-biological science students seeking an understanding of genetics, especially as it relates to humans and the decisions they may have to make as individuals and members of society. Study of genes, their mutation and transmittal and the effect of recent discoveries on present and future generations. Not accepted for credit towards the zoology major.

ZOOL 361 Invertebrate Behavior (3) Two lectures and three hours of laboratory per week. Prerequisite a college level course in zoology or a related discipline. An introduction to invertebrate behavior with emphasis on the observation, description and quantification of normal behavior in a variety of animals. This course does not fulfill the requirement of upper division laboratory courses for zoology majors.

ZOOL 368 Laboratory Techniques in Behavioral Endocrinology (2) One hour of lecture, 6 hours of laboratory per week. Prerequisite consent of instructor. Repeatable to a total of 4 credits. Techniques for analyzing physiological bases of behavior under lab and semi-natural conditions including handling and rearing of animals, surgical techniques and direct video, and computer-assisted behavioral observations.

ZOOL 381 Natural History of the Chesapeake Bay (3) Three lectures per week and at least one Saturday field trip. Prerequisites a course in biological sciences or permission of instructor. Consideration of the major groups of organisms associated with the Chesapeake Bay and current issues that determine man's present and future uses for the Chesapeake and its biota. Not accepted as credit for the zoology major.

ZOOL 390 Comparative Vertebrate Morphology (4) Two hours of lecture and six hours of labortory per week. Prerequisite ZOOL 210 or ZOOL 212 or the equivalent. A comparative study of adaptive modifications in vertebrate structure and function as a result of natural selection.

ZOOL 411 Cell Biology (4) Three hours of lecture and four hours of laboratory per week. Prerequisites ZOOL 211 and 213, CHEM 243 or 245, MATH 140 or 220, or permission of the instructor. A study of the molecular and biochemical basis of cell structure and of integrated functions of the subcellar organelles, with an emphasis on eukaryotes.

ZOOL 413 Biophysics (3) Three lectures a week. Prerequisites ZOOL 211, PHYS 122 or 142, and MATH 140 or 220. An introduction to the ideas and methods used in biophysics to analyze the functional components of cells and tissues as physical-chemical systems.

ZOOL 415 Cell Differentiation (3) Prerequisite ZOOL 211 or 213. The processes by which cells become differentiated from each other during development, with an emphasis on the biochemical and ultrastructural mechanisms of these changes.

ZOOL 421 Neurophysiology (4) Three hours of lecture and three hours of laboratory per week. Prerequisites an introductory course in zoology or biology (e.g. ZOOL 211), CHEM 233, and physics through an introduction to electricity and magnetism. The physiology of nerves, muscles and sensory receptors and aspects of central nervous system physiology.

ZOOL 422 Vertebrate Physiology (4) Three hours of lecture and three hours of laboratory per week. Prerequisites ZOOL 211 and one semester of organic chemistry or permission of instructor. A study of the cardiovascular hemopoietic gastrointestinal renal and respiratory systems. Chemical and endocrine regulation of physiological functions in higher vertebrates with emphasis on mammals.

ZOOL 426 General Endocrinology (3) Three hours of lecture per week. Prerequisites: ZOOL 211, CHEM 233, and CHEM 243. Functions and the functioning of the endocrine glands of animals with special reference to the vertebrates.

ZOOL 430 Vertebrate Embryology (3) Two hours of lecture and six hours of laboratory per week. Prerequisites: ZOOL 211 and 213, or permission of instructor. Vertebrate embryogenesis, developmental physiology and experimental embryology.

ZOOL 431 Advanced Developmental Biology (3) Prerequisites ZOOL 211, 213, and an upper division course in cell biology or developmental biology. A study of the progression of selected problems in developmental biology from their origins in classical experimental embryology to their current status in modern developmental biology through analysis of original articles and experimental results.

ZOOL 440 Evolution (3) Prerequisites ZOOL 210, ZOOL 212, and ZOOL 213. A consideration of current thought in regard to the evolution of living organisms.

ZOOL 444 Advanced Evolutionary Biology (3) Three hours of lecture per week. Prerequisites: ZOOL 440 or equivalent, one semester of calculus. The nature and consequences of organic evolution in relation to present day geography and geologic time. Topics covered will include organic diversity, gradients in space and time, rates of evolution, co-evolution and extinctions. Particular emphasis will be placed in the synthesis of information and on construction and evaluation of hypotheses.

ZOOL 445 Genetic Analysis (3) Prerequisites: a course in genetics (e.g., ZOOL 213) and CHEM 233. A consideration of the mechanisms involved in the transmission of hereditary factors in eukaryotes. Emphasis on the experimental evidence and its interpretation which underlies our present knowledge of heredity.

ZOOL 446 Molecular Genetics (3) Prerequisites: A course in genetics (e.g., ZOOL 213) and a course in organic chemistry. The molecular basis of gene structure and function. Regulation of differential gene expression.

ZOOL 452 Recombinant DNA (3) Prerequisites: ZOOL 211 or 213 or MICB 380 or permission of the instructor. An advanced course presenting the tools and procedures of genetic engineering. Theory and practical applications of recombinant DNA techniques to understanding eukaryotic gene structure and expression. Credit not given for both ZOOL 452 and MICB 452.

ZOOL 455 General Immunology (3) Prerequisites: ZOOL 211 and 213. Basic principles of immunobiology, immunochemistry and immunogenetics with emphasis on the cellular and molecular basis of the immune response: cells of the immune system and their development, interactions and physiologic environment, the antibody response and interaction with antigen, cell mediated immunity, genetic regulation of the immune response, and the relationship of the immune system to disease. Credit not given for both ZOOL 455 and MICB 450.

ZOOL 456 Laboratory in General Immunology (1) Three hours of laboratory per week. Pre- or corequisite: ZOOL 455. Methodology and experimentation employed in basic and applied immunological research: detection, isolation and purification of antibodies, hybridoma production by cell fusion, maintenance of cell lines, purification of lymphoid cell populations, detection of cell mediated immunity and mathematical analysis of immunological data.

ZOOL 460 Ethology (3) Prerequisites: ZOOL 210 and ZOOL 212. A course in physiology is recommended. An introduction to the principles of animal behavior with emphasis on physiological bases, ecological correlates and evolutionary aspects of behavior.

ZOOL 461 Ethology Laboratory (3) One hour of lecture and six hours of laboratory per week. Prerequisite or corequisite: ZOOL 460 or equivalent. Training in the description of behavior, methods of quantification and experimentation, and the mathematical treatment of behavioral data.

ZOOL 465 Behavioral Ecology (4) Prerequisites: ZOOL 212 or permission of instructor. Three lectures and one two hour discussion-laboratory per week. The ways in which natural and social environments shape individual behavior. The influence of evolution on patterns of individual adaptation. Use of the evolutionary paradigm to investigate specific problems in animal and human behavior.

ZOOL 468 Experimental Behavioral Endocrinology (2) One hour of lecture and 6 hours of laboratory per week. ZOOL 368 or consent of instructor. Repeatable to a total of 4 credits.

ZOOL 470 Advanced Animal Ecology (2) Prerequisites: ZOOL 212, a course in calculus, and a course in statistics. A course in genetics is strongly recommended. Theory of population growth and regulation, life tables and population projection, theory of competition and predation, diversity analysis and island geography. Emphasis on current literature and research in ecological theory.

ZOOL 471 Laboratory and Field Ecology (2) Four hours of laboratory and field work per week. Co- or prerequisite: ZOOL 470. Laboratory and field exercises involving problems of contemporary ecological interest: population density regulation, community structure, and spatial pattern diversity in both terrestrial and aquatic systems. Topics coordinated with those presented in ZOOL 470.

ZOOL 472 Protozoology (4) Two hours of lecture and six hours of laboratory including field trips per week. Prerequisite one year of biology. Basic conceptual treatment of free-living and parasitic protozoan functional morphology, life history and systematics. The laboratory will stress observations of protozoa living and stained, collected from diverse habits.

ZOOL 473 Marine Ecology (3) Prerequisites: A course in invertebrate zoology or animal diversity, and ZOOL 470, or permission of the instructor. Courses in evolution and animal behavior are strongly recommended. A detailed analysis of the evolutionary ecology of marine invertebrates, emphasis on testing of theories and on current literature.

ZOOL 475 General Parasitology (4) Two hours of lecture and six hours of laboratory per week. Prerequisites: ZOOL 210, 212 and one semester of organic chemistry. A consideration of the phenomenon of parasitism through a study of the structure, function and host relationships of parasitic organisms.

ZOOL 477 Symbiology (3) Prerequisites: ZOOL 210 or ZOOL 212. An introduction to basic concepts of symbiosis with emphasis on coevolution between symbiotic organisms. Adaptations for establishment and maintenance of mutualistic commensal and parasitic associations. Emphasis on current literature and a research perspective.

ZOOL 480 Aquatic Biology (4) Two hours of lecture and six hours of laboratory per week. Prerequisites: a course in animal diversity (e.g., ZOOL 210) and a course in ecology (e.g. ZOOL 212). An investigation of the relationships of freshwater and estuarine biotic communities to their environment.

ZOOL 481 The Biology of Marine and Estuarine Invertebrates (4) Two hours of lecture and six hours of laboratory per week. Prerequisite one year of zoology including ZOOL 210 or equivalent. A study of the taxonomy and functional morphology of the invertebrates, exclusive of insects. Emphasis on the study of living material.

ZOOL 482 Marine Vertebrate Zoology (4) Two hours of lecture and six hours of laboratory per week. Prerequisite two years of zoology including ZOOL 210 and ZOOL 213. A consideration of the evolution, taxonomy, morphology, physiology, behavior and ecology of marine and estuarine protochordates and vertebrates.

ZOOL 483 Vertebrate Zoology (4) Two hours of lecture and four hours of laboratory per week. Prerequisite ZOOL 212 or permission of instructor. The identification, classification, habits and behavior of vertebrates with emphasis on fresh water, terrestrial and aerial forms and a consideration of the evolution of living and fossil representatives.

ZOOL 492 Form and Pattern in Organisms (3) Prerequisites one year of calculus, one year of physics, one semester of introductory biology. A lecture course in structural and functional interpretation of form in organisms. Pattern formation in morphogenesis, mathematical description of shape, methods and examples of functional analysis of form and patterns of morphological diversity through space and time.

ZOOL 495 Mammalian Histology (4) Two hours of lecture and six hours of laboratory per week. Prerequisites: ZOOL 211 AND 422 or permission of the instructor. A study of the microscopic anatomy, ultrastructure and histophysiology of tissues and organs of mammals.

10 Administration/Faculty

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John W T. Webb

Aaron, Henry J. Professor, Part-time, Economics B A , University of California (Los Angeles), 1958, M A , Harvard University, 1960, Ph D , 1963

Abdelhamid, Mohamed K. Assistant Professor, Mechanical Engineering B Sc , Cairo University, 1974, M S , Iowa State University, 1979 Ph D 1981

Abed, Eyad H. Associate Professor, Electrical Engineering Associate Professor Systems Research Center B S Massachusetts Institute of Technology, 1979, M S , University of California (Berkeley), 1981 Ph D 1982

Abraham, Katherine Associate Professor, Economics B S Iowa State University, 1976, Ph D , Harvard University 1982

Adams, Jeffrey D. Assistant Professor, Mathematics B A , Johns Hopkins University, 1977, Ph D , Yale University, 1981

Adams, John Q., III Professor, Economics A B , Oberlin College, 1960, Ph D University of Texas, 1965

Adams, Lowell, W. Instructor, Part-time, Agricultural and Extension Education B S , Virginia Polytechnic Institute & State University , 1968, M S , The Ohio State University 1973, Ph D , 1976

Adams, William W. Professor Mathematics B A University of California (Los Angeles), 1959, Ph D , Columbia University, 1964

Ades, Ibrahim Z. Associate Professor Zoology B A University of California (Los Angeles), 1971 Ph D , 1976

Adler, Isidore Professor Emeritus, Chemistry and Biochemistry B S , Brooklyn College, 1942, M S Brooklyn Polytechnic Institute 1947 Ph D , 1952

Adler, Marina Assistant Instructor Part-time Sociology B A , University of Tennessee, 1981, M A , 1984

Agar, Michael H. Professor, Anthropology A B , Stanford University, 1967 Ph D University of California (Berkeley), 1971

Aggour, M. Sherif Professor, Civil Engineering B S , Cairo University, 1964, M S , 1966, Ph D , University of Washington, 1972

Agrawal, Brig. Lecturer, Part-time, Aerospace Engineering B S Honrs , Banaras University, 1964, M E Honrs , Roorkee University, 1966, M S , McMaster University, 1968, Ph D., Syracuse University, 1970

Agrawala, Ashok K. Professor, Computer Science B S , Agra University, 1960, B E , Indian Institute of Science, 1963, M E., 1965, Ph D , Harvard University, 1970

Agre, Gene P. Associate Professor, Education Policy, Planning, and Administration B A , Macalester College, 1951, B S , University of Minnesota, 1953, M A , 1956, Ph D , University of Illinois (Urbana), 1964

Aguilar-Mora, Jorge Associate Professor, Spanish and Portuguese B A , Universidad Nacional de Mexico, 1966, Ph D , El Colegio de Mexico, 1976

Ahad, Rafiul Assistant Professor, College of Business and Management B Sc , Burma Arts and Science University, 1973, M Sc , 1975, M Sc., Asian Institute of Technology 1980, Ph D , University of Southern California, 1985

A'Hearn, Michael F. Professor, Physics and Astronomy, Astronomy Program B S , Boston College, 1961, Ph D , University of Wisconsin, 1966

Ahn, Sung K. Visiting Assistant Professor, College of Business and Management B A , Seoul National University, 1979, M S , Wright State University, 1983, Ph.D , University of Wisconsin, 1987

Ahrens, Richard A. Professor, Human Nutrition and Food Systems B S., University of Wisconsin, 1958, Ph D , University of California (Davis), 1963

Aiello, Elaine L. Instructor, Part-time, Special Education B S , Gallaudet College, 1966, M A Western Maryland, 1975

Albrecht, Pedro Professor, Civil Engineering Dipl Ing , Federal Institute of Technology (Switzerland), 1962, Ph D , Lehigh University, 1972

Aldridge, Charlotte Groff Instructor Maryland English Institute B A , University of Florida, 1979, M A , 1982

Alexander, Charles, Jr. Lecturer Part-time Electrical Engineering B S , Lowell Technological Institute, 1962, M S , University of New Hampshire, 1965, Ph D , University of Maryland, 1973

Alexander, James C. Professor, Mathematics B A Johns Hopkins University, 1964 Ph D , 1968

Alexander, Millard H. Professor Chemistry and Biochemistry B A , Harvard, 1964 Ph D , University of Paris, 1967

Alford, C. Fred Assistant Professor, Government and Politics B A , Austin College, 1969, M A , University of Texas, 1971, Ph D., 1979

Ali, Abdul Assistant Professor College of Business and Management Bachelor of Technology, Indian Institute of Technology, 1978, M B A , Indian Institute of Management, 1980, Ph D , Purdue University, 1988

Allan, J. David Professor, Zoology B Sc University of British Columbia, 1966, M S , University of Michigan, 1968, Ph D , 1971

Allen, Ira R. Lecturer, Part-time, College of Journalism B S , University of Maryland, 1970

Allen, LaRue Associate Professor, Psychology A B Radcliffe College, 1972, M S , Yale University, 1977, Ph D , 1980

Allen, Redfield W. Professor, Part-time, Mechanical Engineering B S , University of Maryland, 1943, M S , 1949, Ph D , University of Minnesota, 1959

Allen, Roger J. Associate Professor, Health Education B S E , University of Kansas, 1976, M S 1977, Ph D , University of Maryland, 1979

Alley, Carroll O., Jr. Professor, Physics and Astronomy B S , University of Richmond, 1948, M A , Princeton University, 1951, Ph D , 1962

Almenas, Kazys K. Associate Professor, Chemical and Nuclear Engineering B S , University of Nebraska, 1957, Ph D., University and Polytechnic of Warsaw, 1968

Almon, Clopper, Jr. Professor, Economics A B , Vanderbilt University, 1956; Ph D , Harvard University, 1962

Aloimonos, John Assistant Professor Computer Science B.S., University of Athens (Greece), 1981 M.S. University of Rochester, 1984 Ph.D. 1986

Alston-Mills, Brenda Assistant Professor Animal Sciences A.B., Lycoming College, 1967, M.Sc., Michigan State University, 1972, Ph.D. 1984

Alt, Frank B. Associate Professor College of Business and Management B.S.E. Johns Hopkins University 1967 M.S. Georgia Institute of Technology, 1973 Ph.D., 1977

Altar, Mary K. Instructor, Mathematics B.S., University of Maryland, 1957 M.Ed. 1976, Ph.D. 1987

Altman, Barbara Lecturer, Sociology B.A. Pennsylvania State University, 1958, M.A., University of Maryland, 1976, Ph.D., 1984

Amershek, Kathleen G. Associate Professor, Curriculum and Instruction B.S. Indiana State College (Pennsylvania), 1951, M.Ed., Pennsylvania State University, 1957 Ph.D., University of Minnesota 1966

Amir, Amihood Assistant Professor, Computer Science B.S., Bar Ilan University, Magna Cum Laude, 1975, M.S., Bar Ilan University, 1976, Ph.D. 1983

Ammon, Herman L. Professor Chemistry and Biochemistry B.Sc., Brown University, 1958, Ph.D. University of Washington, 1963

Amodeo, Stefania Instructor, French and Italian Laurea in Literature, Genoa University (Italy), 1964

Anand, Davinder K. Professor, Mechanical Engineering B.S., George Washington University, 1959, M.S., 1961, Ph.D., 1965

Anastos, Georga Professor Emeritus, Zoology B.S., University of Akron, 1942, M.A., Harvard University, 1947, Ph.D., 1949

Ancekewicz, Elaine Assistant Professor, French and Italian B.A. Cornell University, 1974 M.A. Yale University, 1975, M.Ph., 1977 Ph.D., 1984

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Anderson, Clarita S. Assistant Professor, Textiles and Consumer Economics B.S., University of Minnesota, 1959, Ph.D., University of Maryland, 1985

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Anderson, Elaine A. Associate Professor, Family and Community Development B.S., The University of Nebraska, 1973, M.S., The Pennsylvania State University, 1975, Ph.D. 1978

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Anderson, J. Robert Professor Physics and Astronomy B.S., Iowa State University, 1955, Ph.D. 1963

Anderson, Nancy S. Professor, Psychology B.A., University of Colorado, 1952, M.A., Ohio State University, 1953, Ph.D., 1956

Anderson, Vernon E. Professor Emeritus, Education Policy, Planning, and Administration B.S., University of Minnesota, 1930, M.A. 1936, Ph.D., University of Colorado, 1942

Andrews, J. Edward Visiting Professor, Education Policy, Planning, and Administration, Director, Research and Development Laboratory on School Based Administration B.S., Frostburg State College, 1957 M.Ed., University of Maryland, 1961, Ed.D., 1968

Angle, Jay S. Associate Professor Agronomy B.S., University of Maryland 1975, M.S. 1978, Ph.D. University of Missouri, 1980

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Ansell, Joseph P. Assistant Professor Housing and Design B.A. Knox College 1971 M.F.A. George Washington University 1975

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Auchard, John F. Associate Professor, English B.A. New York University, 1970, M.A. University of Michigan 1971, Ph.D., University of North Carolina 1980

Auerbach, Jonathan Assistant Professor, English B.A. University of California (Santa Cruz), 1976, M.A. Johns Hopkins University, 1978, Ph.D., 1984

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Barnett, Neal M. Associate Professor Botany B.S. Purdue University, 1959, Ph.D. Duke University, 1966

Barnett, Ronald J. Associate Professor Music B.Mus. University of Rochester 1960 M.Mus. University of Maryland 1973

Baron, Sandy D. Instructor Part-time Institute of Applied Agriculture B.A. Michigan State University 1974 J.D. Catholic University Columbus School of Law, 1977

Barrabini, Micheline Lecturer, French and Italian Licence en Droit, Bordeaux (France), 1952, Licence es Lettres, Aix en Provence (France), 1955

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Basili, Victor R. Professor, Computer Science, Professor, Institute for Advanced Computer Studies B S , Fordham University, 1961, M S , Syracuse University, 1963, Ph D , University of Texas, 1970

Basiotis, Peter P. Adjunct Assistant Professor, Textiles and Consumer Economics B A , University of Kansas, 1973, M A 1975, Ph D , University of Missouri, 1983

Basu, Amit Assistant Professor, College of Business and Management B S , Indian Institute of Technology, 1979, M B A , Southern Illinois University, 1981, M S , University of Rochester, 1983, Ph D 1986

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Beach, Eugene H., Sr. Lecturer, Part-time, Physics and Astronomy B S , University of Michigan, 1941, M S , 1947, Ph D 1953

Beach, John E. Lecturer, College of Business and Management B S , Wayne State University, 1968, J D , Detroit College of Law, 1973

Bean, George A. Associate Dean, College of Agriculture and Life Sciences; Professor, Botany B S , Cornell University, 1958, M S , University of Minnesota, 1960, Ph D , 1963

Beardsley, Katherine Pedro Assistant Dean, College of Behavioral and Social Sciences B S , Oregon State University, 1972, M A , University of Minnesota, 1977, Ph D , 1983

Beasley, Maurine H. Professor, College of Journalism B A , University of Missouri, 1958, B J , 1958, M S , Columbia University, 1963, Ph D , George Washington University, 1974

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Beatty, Charles J. Associate Professor & Acting Chair, Industrial, Technological and Occupational Education B S , Northern Michigan University, 1959, M S , University of Michigan, 1963, Ph D , Ohio State University, 1967

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Bechhoefer, William B. Associate Professor, School of Architecture A B , Harvard College, 1963, M Arch , Harvard Graduate School of Design, 1967

Beck, Evelyn T. Professor and Director, Women's Studies Program B A , Brooklyn College, 1954, M A , Yale University, 1955, Ph D , University of Wisconsin (Madison), 1969

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Walters, Edward H. Instructor, Music B A Peabody Conservatory of Music, 1968, M A , Catholic University, 1982

Walters, Richard W. Assistant Professor, Civil Engineering B S , Carnegie-Mellon University, 1977, M S , MIT 1978, Ph D , Carnegie-Mellon University, 1981

Walters, William B. Professor, Chemistry and Biochemistry B S Kansas State University 1960, Ph D University of Illinois, 1964

Walton, A. Ronald Associate Professor, Hebrew and East Asian B A University of Texas, 1967, M A , Cornell University, 1970, Ph D , 1975

Walton, William D. Lecturer Part-time, Fire Protection Engineering B S , University of Maryland, 1972 M S , 1976

Waltrup, Paul Lecturer Part-time Aerospace Engineering B S , University of Maryland, 1967 M S , 1968 Ph D , Virginia Polytechnic Institute, 1971

Wang, Ching-Ping Shih Associate Professor Physics and Astronomy B S Tung-Hai University 1969, M S Louisiana State University, 1971, Ph D 1974

Wang, Kung-Yeh Lecturer Part-time, Mechanical Engineering B S Brown University 1953

Wang, Nam S. Assistant Professor, Chemical and Nuclear Engineering B S University of California, 1979 M S California Institute of Technology 1982 Ph D California Institute of Techology, 1987

Wang, Xiaolu Assistant Professor Mathematics M A Wayne State University 1981 Ph D , University of California (Berkeley) 1985

Ward, Veda E. Lecturer, Recreation B A Bucknell University 1972, M S , University of Baltimore, 1978 Ph D University of Maryland, 1984

Warner, Charles R. Associate Professor, Mathematics B A University of Toronto, 1955 B S University of Rochester 1957, Ph D , 1962

Warren, Anne Associate Professor, Dance B A Ohio State University, 1966, M Ed , Wayne State University 1969

Warren, Donald R. Professor and Chair, Education Policy Planning and Administration B A , University of Texas, 1957 Th M , Harvard University, 1960, Ph D University of Chicago, 1968

Warren, J. Benedict Professor, History B A , Duns Scotus College, 1953, M A , University of New Mexico, 1960, Ph D , 1963

Warren, Lawrence. Professor, Dance B A , University of California (Los Angeles), 1953, M A 1968

Washburn, Wilcomb E. Adjunct Professor American Studies B A , Dartmouth College, 1948, Ph D. Harvard University, 1955

Washington, Lawrence C. Professor, Mathematics B A , Johns Hopkins University, 1971 M A , 1971, Ph D , Princeton University, 1974

Wasserman, Paul Professor, College of Library and Information Services. B B A , City University of New York (City College), 1948, M S L S , Columbia University, 1949 M S , 1950; Ph D University of Michigan, 1960

Watson, John C. Assistant Professor, Botany B S , Butler University 1975; Ph D., Indiana University, 1982

Weaver, V. Phillips Professor, Curriculum and Instruction A B , College of William and Mary, 1951, M Ed , Pennsylvania State University, 1956, Ed D., 1962

Webb, Kevin Assistant Professor, Electrical Engineering B Eng , Royal Melbourne Institute of Technology, 1977, M Eng , , 1980, M S , University of California (Santa Barbara), 1981, Ph.D , University of Illinois, 1981

Weber, Joseph Professor, Physics and Astronomy B S , United States Naval Academy, 1940; Ph D , Catholic University of America, 1951

Wei, Ching-Zong Professor, Mathematics B A , National Tsing-Hua University, 1971, M A , 1973, Ph.D Columbia University, 1980

Weidner, Jerry R. Associate Professor, Geology A B , Miami University (Ohio), 1960; M S , 1963, Ph D , Pennsylvania State University, 1968

Weigand, William A. Professor, Chemical Engineering B S , Illinois Institute of Technology, 1962, M S , 1963, Ph.D 1968

Weil, Raymond R. Associate Professor, Agronomy B S , Michigan State University, 1970; M S , Purdue University, 1972, Ph.D , Virginia Polytechnic Institute, 1977

Weinberg, Amy S. Assistant Professor, Linguistics Program B A , McGill University, 1976

Weiner, John Professor, Chemistry and Biochemistry B S , Pennsylvania State University, 1964, Ph D , University of Chicago, 1970.

Weiner, Ronald M. Professor, Microbiology B.S , CUNY (Brooklyn College), 1964, M S , Long Island University, 1967 Ph D , Iowa State University, 1970

Weinstein, Paul A. Associate Professor Economics. B A , College of William and Mary, 1954, M A , Northwestern University, 1958, Ph D , 1961

Weinstein-Albert, Jodi Lecturer, Part-time, General Honors Program B A , University of Maryland, 1979, Ph D , SUNY (Albany), 1986

Weismiller, Richard A. Associate Professor, Agronomy B S , Purdue University 1964, M S , 1966, Ph D , Michigan State, 1969

Weiss, Gene A. Associate Professor, Communication Arts and Theatre B A , Brandeis University, 1961, M A , New York University, 1965, Ph D , Ohio University, 1970

Weiss, Marion G. Assistant Professor, School of Architecture B S ARCH , University of Virginia, 1979, M ARCH, Yale University, 1984

Weissman, Clem C. Lecturer, part-time, Aerospace Engineering B S M E , Georgia Institute of Technology, 1940 A E (U S N), California Institute of Technology, 1943

Wellford, Charles F. Professor and Director, Institute of Criminal Justice and Criminology B A , University of Maryland 1961 M A 1963, Ph D , University of Pennsylvania, 1969

Wellisch, Hana W. Professor Emeritus, College of Library and Information Services M L S , University of Maryland, 1972 Ph D , 1975

Wells, Veronica A. Assistant Professor, Part-time, Music , Howard University, 1961 , Wright State University, 1967

Wemmer, Christen Adjunct Associate Professor, Zoology B A , San Francisco State College, 1965; M A., 1967, Ph D , University of Maryland, 1972

Wenhold, James R. Instructor, Physical Education. B S., University of Maryland, 1985, M S , 1987

Wentzel, Donat G. Professor, Physics and Astronomy, Astronomy Program B A , University of Chicago, 1954, B S , 1955, M S 1956, Ph D , 1960

Werlinich, Carol Ann Instructor, Family and Community Development B S., Pennsylvania State University, 1961, M S University of Maryland, 1974, Ph D , 1983

Wertheimer, Loretta C. Assistant to the Vice President, Academic Affairs B A , Mount Holyoke College, 1957, M A., University of Maryland, 1976; Ph D., 1980

Weske, John R. Professor Emeritus, Mechanical Engineering, Dipl Ing , Hannover Institute of Technology, 1924, M S , Harvard University, 1932, Sc D., 1934

Westbrook, Franklin Associate Professor, Counseling and Personnel Services; Acting Director, Office of Minority Student Education, B S , Chicago State University, 1961; M S , City University of New York, 1969, Ed D., Indiana University, 1971

Westerhout, Gart Adjunct Professor, Physics and Astronomy, Astronomy Program, B.S., University of Leiden, 1950, M S , 1954, Ph.D , 1958

Westhoff, Dennis C. Professor and Chairman, Animal Sciences B S , University of Georgia, 1966, M.S., North Carolina State University, 1968, Ph D., 1970

Wexler, Richard Associate Professor, Music B.Mus., University of Michigan, 1963, M.A , New York University, 1969, Ph D 1974

Wheaton, Fredrick W. Professor, Agricultural Engineering B S.A.E., Michigan State University, 1964; M.S., 1965; Ph D., Iowa State University, 1969

Wheelock, Arthur K. Associate Professor, Art History. B A , Williams College, 1965, Ph D., Harvard University, 1973

White, Marilyn D. Associate Professor, College of Library and Information Services B A , Our Lady of the Lake College, 1962; M S , University of Wisconsin, 1963; Ph.D., University of Illinois, 1971.

Whitehead, Tony L. Chairman, Anthropology B A., Shaw University, 1965; M S Hyg , University of Pittsburgh, 1969; Ph D., 1976.

Whittemore, E. Reed Professor Emeritus, English B.A., Yale University, 1941

Widhelm, William B. Associate Professor, College of Business and Management B.E.S., Johns Hopkins University, 1959; M.S.E., 1960; M S M.S., 1965; Ph.D., 1969

Wiedel, Joseph W. Associate Professor, Geography B A , University of Maryland, 1958, M A., 1963.

Wiedemann, Gregory Lecturer, Part-time, School of Architecture B A , Tufts University, 1972, B.S.C.E., 1973; M Arch Harvard Graduate School of Design, 1977.

Weigand, William Professor, Chemical Engineering. B.S., Illinois Institute of Technology, 1962; M S , 1963, Ph.D., 1968

Wilbur, June C. Assistant Professor Emerita, Textiles and Consumer Economics B S , University of Washington, 1936, M Ed , 1937, M.S , Syracuse University, 1940

Wiley, Robert C. Professor, Horticulture; Coordinator, Food Science Program B S , University of Maryland, 1949, M S , 1950, Ph D , Oregon State University, 1953.

Wilkenfeld, Jonathan Professor, Government and Politics B S , University of Maryland, 1964, M.A., George Washington University, 1966; Ph D., Indiana University, 1969

Wilkerson, Thomas D. Research Professor, Institute for Physical Science and Technology B S., University of Michigan, 1953; Ph D , 1962

Wilkes, Joseph A. Lecturer, Part-time, School of Architecture. B A , Dartmouth College, 1941; M ARCH, Columbia University, 1949

Wilkinson, Gerald S. Assistant Professor, Zoology. B.S., University of California, 1977, Ph D , University of California (San Diego), 1984

Wilkinson, Thomas K. Instructor, Part-time, Industrial, Technological and Occupational Education. B A., American International College, 1950, M A , Harvard University, 1956

Williams, Aubrey W., Jr. Professor Anthropology B A University of North Carolina, 1955 M A 1957 Ph D University of Arizona 1964

Williams, Barbara W. Lecturer Urban Studies B A Howard University, 1970, M P A The American University 1976

Williams, David L. Associate Professor (Retired), Curriculum and Instruction B S , Bradley University 1953, M Ed , University of Illinois (Urbana), 1956 Ed D 1964

Williams, Eleanor Associate Professor, Human Nutrition and Food Systems B S , Texas Woman's University, 1945, M S , Iowa State University, 1947 Ph D Cornell University 1963

Williams, Ellen D. Associate Professor Physics and Astronomy B S , Michigan State University 1976 Ph D California Institute of Technology 1981

Williams, Helen E. Assistant Professor College of Library and Information Services, Assistant Professor, Curriculum and Instruction B A , Morris College, 1954 M S L S Atlanta University, 1960, C A S University of Illinois (Urbana), 1969, Ph D , University of Wisconsin (Madison) 1983

Williams, Melvin D. Professor, Anthropology, Professor, Afro-American Studies A B , University of Pittsburgh, 1955, M A , 1969, Ph D 1973

Williams, Otis Director, Nyumburu Center, Affiliate, Afro-American Studies Program B A Morgan State University, 1970, M A , University of Maryland,

Williams, Rhonda M. Assistant Professor, Joint Afro-American Studies and Economics B A Harvard-Radcliffe College, 1978, Ph D Massachusetts Institute of Technology, 1983

Williams, Thelma M. Assistant Dean College of Computer, Mathematical and Physical Sciences B S , University of Maryland, 1977 M A 1980, Ph D 1986

Williams, Walter F. Professor Animal Sciences B S University of Missouri 1951, M S , 1952, Ph D , 1955

Williams, William H. Assistant Professor History A B Washington and Lee University 1956, M A Duke University 1960, Ph D , 1965

Wilner, Benjamin Assistant Professor, Mechanical Engineering B S , Tel-Aviv University 1979, M S Harvard University, 1981, Ph D , 1986

Wilson, Andrew S. Professor, Physics and Astronomy, Astronomy Program B A Cambridge University, 1969 M A 1973, Ph D 1973

Wilson, Forrest Visiting Professor, Part-time, School of Architecture Ph D , Union of Experimenting Colleges & Universities, 1977

Wilson, Gayle E. Associate Professor, English B A Wayne State University, 1960, M A , University of Rochester, 1962, Ph D , 1965

Wilson, Jack M. Professor part-time, Physics and Astronomy B A , Thiel College, 1967 M S Carnegie-Mellon, 1968, Ph D Kent State University, 1972

Wilson, Laura B. Director, Center on Aging, Professor, Health Education B A Simmons College, 1969 M A University of Pennsylvania, 1970, Ph D 1974

Wilson, Leda A. Associate Professor Family and Community Development B S , Lander College, 1943 M S University of Tennessee, 1950, Ed D 1954

Wilson, Mark Associate Professor Music A B , University of California (Los Angeles), 1970, M S 1972, Ph D 1974

Wilson, Robert M. Professor, Curriculum and Instruction B S , California State College (PA), 1950, M S , University of Pittsburgh, 1956, Ed D , 1960

Wilson, Stephanie Y. Lecturer, Part-time, Afro-American Studies B S , Goddard College, 1973, M A , State of New York (Stony Brook) 1974, Ph D , 1978

Wilson, William G. Librarian Lecturer College of Library and Information Services B A , Louisiana State University 1958, A M L S , University of Michigan, 1960 M A Claremont Graduate School, 1971

Wiltz, Alcine J. Professor and Chairman Dance B A University of Southwestern Louisiana, 1964 M F A University of Wisconsin, 1967

Windle, Robert J. Assistant Professor College of Business and Management B A College of William and Mary 1977 M S University of Wisconsin Madison 1981 Ph D , 1984

Winick, Myron Visiting Professor Human Nutrition and Food Systems B A Columbia University 1951 M S University of Illinois, 1952 M D State University of New York, 1956

Winkelmann, Allen E. Associate Professor Aerospace Engineering B S University of Minnesota 1965 M S University of Maryland, 1967 Ph D 1976

Winkelnkemper, H. E. Associate Professor, Mathematics B A , National University of Mexico 1963 M A Princeton University, 1965, Ph D 1970

Winkler-Crowley, Abby L. Lecturer, Special Education B S Boston University 1973, M A , Catholic University of America, 1981 Ph D 1983

Winstead, Warren J. Director, College of Business and Management B A University of Richmond, 1950, M S , 1955 C A S Harvard University, 1957, Ed D , 1958

Winton, Calhoun Professor English A B , University of the South (Sewanee), 1948, M A , Vanderbilt University, 1950, M A Princeton University, 1954, Ph D , 1955

Wisler, Carl E. Instructor, Part-time, Agricultural and Extension Education A B , Emporia State University, 1956, M S 1957

Witczak, Matthew W. Professor, Civil Engineering B S , Purdue University 1962, M S , 1963, Ph D , 1969

Withers, Josephine Associate Professor, Art History B A Oberlin College, 1960, M A , Columbia University, 1965, Ph D , 1971

Witherspoon, Christine L. Assistant to the Dean, College of Behavioral and Social Sciences B A , Michigan State University, 1971, M B A University of Maryland, 1988

Wockenfuss, William A. Professor, Part-time, Mechanical Engineering B S University of Maryland, 1949, M Ed , 1953, Ed D University of Florida, 1960

Wolde-Tinsae, Amde M. Professor, Civil Engineering B E S Johns Hopkins University, 1970; M S , University of California (Berkeley), 1971, Ph D , State University of New York (Buffalo), 1976

Wolfe, Peter Professor, Mathematics, B S , Saint Lawrence University 1959, B S E E Rensselaer Polytechnic, 1959, M S , Northwestern University, 1961, Ph D , New York University 1965

Wolniak, Stephen M. Associate Professor, Botany B A , SUNY (Oswego), 1972 M S , University of Illinois (Urbana), 1974, Ph D University of California (Berkeley), 1979

Wolpert, Scott A. Professor, Mathematics B A , Johns Hopkins University, 1972, M A , Stanford University, 1974, Ph D , 1976

Wolvin, Andrew D. Professor, Communication Arts and Theatre B S , University of Nebraska, 1962, M A , 1963, Ph D , Purdue University, 1968

Wonnacott, Paul Professor, Economics, B A , University of Western Ontario, 1955; M A , Princeton University, 1957, Ph D , 1959

Woo, Ching Hung Professor, Physics and Astronomy B S , Louisiana Technological Institute, 1958, M S , University of California (Berkeley), 1960, Ph D , 1962

Wood, Francis E. Professor, Entomology B S , University of Missouri, 1958; M S , 1962; Ph D , University of Maryland, 1970

Wrenn, Jerry P. Associate Professor and Assistant Chairman, Physical Education, B S , East Carolina University, 1961, M S , University of Tennessee, 1963, Ph D , University of Maryland 1970

Wright, Elissa Y. Assistant Dean for Student Affairs, School of Public Affairs B A , Yale University, 1983, J D , Stanford Law School, 1986

Wright, Winthrop R. Associate Professor, History B A , Swarthmore College 1958, M A University of Pennsylvania, 1960, Ph D 1964

Wuttig, Manfred R. Professor, Chemical and Nuclear Engineering Director Engineering Materials Program B S , Technische Hochschule Dresden, 1955, M S , 1958, Ph D , 1962

Wyatt, David M. Associate Professor, English B A Yale University 1970 Ph D , University of California (Berkeley), 1975

Wylie, Ann G. Associate Professor, Geology B S , Wellesley College, 1966, Ph D , Columbia University, 1972

Wysong, John W. Professor, Agricultural and Resource Economics B S Cornell University 1953, M S , University of Illinois (Urbana) 1954 Ph D , Cornell University, 1957

Yaginuma, Kazuo Instructor, Hebrew and East Asian ESL M A University of San Francisco, 1984, B A Ohlemon Gakuin University (Japan), 1973

Yaney, George L. Professor, History B E , Rensselaer Polytechnic Institute 1952 M A , University of Colorado, 1956, Ph D Princeton University 1961

Yang, Grace L. Professor Mathematics B A , National Taiwan University 1960, M A , University of California (Berkeley) 1963, Ph D 1966

Yang, Hui-Fang Visiting Research Scholar, Textiles and Consumer Economics B S Anhui College of Engineering, 1964

Yang, Jackson C.S. Professor Mechanical Engineering B S University of Maryland, 1958 M A 1961, Ph D , 1963

Yanta, William Lecturer, Part-time, Aerospace Engineering B S , University of Texas, 1962, M S , Catholic University of America, 1964 Ph D , 1973

Yao, S. Bing Professor, College of Business and Management B S , National Taiwan University, 1968, M A , Western Michigan University, 1969 Ph D , University of Michigan, 1974

Yeck, Robert G. Visiting Professor, Agricultural Engineering B S , University of Wisconsin, 1948, M S , University of Missouri, 1953, Ph D , 1960

Yeh, Kwan-nan Professor, Textiles and Consumer Economics B S , National Taiwan University, 1961, M S , Tulane University, 1965, Ph D , University of Georgia, 1970

Yeiser, Gail P. Instructor, Part-time, Institute of Applied Agriculture B S , University of Maryland, 1975, M S , 1982

Yeni-Komshian, Grace H. Professor, Hearing and Speech Sciences B A , American University of Beirut, Lebanon, 1957, M S , Cornell University, 1962, Ph D , McGill University, 1965

Yorke, James A. Professor, Mathematics, Director, Institute for Physical Science and Technology A B Columbia University, 1963, Ph D , University of Maryland, 1966.

Young, Edgar P. Professor, Animal Sciences B S Ohio State University, 1954, M S , 1956, Ph D , 1958

Young, H. Peyton Professor, School of Public Affairs B A , Harvard University 1966, Ph D , University of Michigan, 1970

Young, Vernetta D. Assistant Professor, Institute of Criminal Justice and Criminology B A , University of Maryland, 1972, M A , Florida State University 1974 Ph D , SUNY (Albany), 1981

Yuan, Robert T. Professor, Microbiology B S , Antioch College, 1960, Ph D , Albert Einstein College, 1966.

Zafiriou, Evangheios Assistant Professor, Chemical and Nuclear Engineering, Assistant Professor, Systems Research Center B S , National Technical University, 1982, Ph D , California Institute of Technology, 1986

Zagier, Don Professor, Mathematics B S Massachusetts Institute of Technology, 1968, Diploma Adv Math , Oxford University, 1969, D Phil Math , 1972, Habilitation Math, University of Bonn, 1975

Zaki, Kawthar Professor, Electrical Engineering B S Ain Shams University (Cairo), 1962, M S , University of California (Berkeley), 1966, Ph D , 1969

Zanot, Eric J. Associate Professor, College of Journalism B A , Pennsylvania State University, 1965, M A , 1970, Ph D , University of Illinois, 1977

Zappala, Michael O. Assistant Professor, Spanish and Portuguese B A , Queen College of CUNY, 1969, M A Harvard University, 1970, Ph D , 1975

Zedek, Mishael Professor, Mathematics M S , Hebrew University of Jerusalem, 1952, Ph D , Harvard University, 1956

Zeiger, Robyn S. Lecturer, Part-time, Women's Studies Program B S , University of Maryland, 1972, M S 1973, Ph D , 1979

Zelkowitz, Marvin M. Associate Professor Computer Science B S , Rensselaer Polytechnic Institute, 1967, M S Cornell University, 1969, Ph D , 1971

Zerbinos, Eugenia Assistant Professor, College of Journalism, B A , Michigan State, 1973, M A , 1981 Ph D , 1986.

Zhu, Shaoyun Visiting Research Scholar, Textiles and Consumer Economics B S Fudan University (Shanghai, China), 1968, M S , China Textile University, 1982

Zieha, Eugene L. Lecturer, College of Business and Management B S , St Louis University, 1946, M S , 1948, Ph D , University of Illinois, 1952

Zilli, Madeline C. Associate Professor, History A B , Mount Holyoke College, 1964, M A , University of Chicago, 1971, Ph D , 1976

Zipoy, David M. Associate Professor, Physics and Astronomy, Astronomy Program B S , University of Minnesota, 1954 Ph D , 1957

Zorn, Gus T. Professor, Physics and Astronomy B S , Oklahoma State University 1948 M S University of New Mexico, 1950, Ph D University of Padua, 1954

Zwanzig, Robert W. Distinguished Professor of Physical Science, Institute for Physical Science and Technology B S Polytechnic Institute of Brooklyn, 1948 M S University of Southern California, 1950, Ph D , California Institute of Technology, 1952

11 APPENDICES

Appendix A: Human Relations Code*

**The Human Relations Code is currently being revised by the Campus Senate to reflect the recent reorganization of the academic units at College Park. The following interim procedure is to be in effect until such time as the Code is revised by the Campus Senate. For the nondepartmentalized colleges, an Assistant Vice Chancellor shall assume the responsibilities formerly held by the division provost. For the departmentalized colleges, the dean of the college shall assume the responsibilities formerly held by the division provost.*

Article I Purpose

A. The University of Maryland College Park affirms its commitments to a policy of eliminating discrimination on the basis of race, color, creed, sex, marital status, personal appearance, age, national origin, political affiliation, physical or mental handicap, or on the basis of the exercise of rights secured by the First Amendment of the United States Constitution. This code is established to prevent or eradicate such discrimination in accordance with due process within the campus community. In doing so the campus recognizes that it must strive actively and creatively to build a community in which opportunity is equalized

B. Accordingly, the Campus Senate of The University of Maryland, College Park Campus, establishes this Human Relations Code to:
   1. prohibit discrimination as defined in this document within the College Park campus community both by educational programs and, to the extent specified herein, by a formal grievance procedure,
   2. establish the responsibilities of the Adjunct Committee on Human Relations of the Senate General Committee on Campus Affairs;
   3. establish the responsibilities of the Office of Human Relations Programs in connection with this code;
   4. establish mediation and grievance vehicles within the colleges of the campus, in conformity with the Campus Affirmative Action Plan;
   5. establish the responsibilities of Equal Education and Employment Opportunity (EEEO) Officers.

C. Every effort will be made to make students and potential students, employees and potential employees, faculty members and potential faculty members aware of the opportunities that the campus provides for every individual to develop and utilize his talents and skills. It is the intent of the campus to enhance among its students and employees respect by each person for that person's own race, ethnic background, or sex, as well as appreciation and respect for the race, ethnic background, or sex of other individuals.

D. Development of a positive and productive atmosphere of human relations on the campus shall be encouraged through effective dialogue and broadening of communications channels. The Adjunct Committee on Human Relations and the Office of Human Relations Programs shall provide support and assistance, as authorized, to any individual or group deemed by them to have a positive probable impact in working toward increased understanding among all individuals and groups on the campus

E. The Senate Adjunct Committee on Human Relations shall advise the Office of Human Relations Programs in recommending policies that fulfill the provisions of this code. In particular
   1. The Senate Adjunct Committee on Human Relations shall be an adjunct committee of the standing Senate General Committee on Campus Affairs.
   2. The purpose of the Senate Adjunct Committee on Human Relations shall be to foster better human relations among all individuals and groups on the campus, to advise in the development of positive and creative human relations programs, to advise in the prevention and eradication of all forms of discrimination prohibited by this code, and to make regular assessments of the state of human relations within the purview of this campus.
   3. The functions of the Senate Adjunct Committee on Human Relations may include but are not limited to: requesting the Office of Human Relations Programs to conduct investigations of complaints of discrimination because of race, color, creed, sex, marital status, personal appearance, age, national origin, political affiliation, physical or mental handicap, or on the basis of the exercise of rights secured by the First Amendment of the United States Constitution; providing an "open forum" for effective dialogue among all segments of the campus community; recommending to appropriate campus bodies educational programs and activities to promote equal rights and understanding; periodically reviewing such programs and activities; initiating studies of campus-sponsored or recognized programs and activities to determine how improvement can be made in respect to human relations, continually reviewing progress toward these ends and making such further recommendations as experience may show to be needed, and participating to the extent set forth herein in formal human relations grievance actions

F. There shall be an Office of Human Relations Programs directly responsible to the chancellor. This office shall plan, develop, give direction to and coordinate the overall campus effort to prevent and eliminate discrimination based on race, color, creed, sex, marital status, personal appearance, age, national origin, political affiliation, physical or mental handicap, or on the basis of the exercise of rights secured by the First Amendment of the United States Constitution, in all areas of campus life (this overall effort is referred to herein as the "Human Relations Program"). The office shall represent, and have direct access to, the chancellor, and shall cooperate with the Senate Adjunct Committee on Human Relations on substantive matters concerning human relations. The office shall assist and coordinate the human relations activities of the Equal Employment and Educational Opportunity Officers and the equity officers representing the various units of the campus.

   The duties and responsibilities of the Office of Human Relations Programs shall include but not be limited to the following: working with deans, directors, and department chairs to ensure full compliance, in spirit as well as in letter, with laws relating to discrimination and with the Campus Human Relations Code; advising campus offices in efforts to assist personnel to recognize and take advantage of career opportunities within the campus; working with appropriate offices in the surrounding community on such issues as off-campus housing practices affecting campus students and employees, transportation, etc.; recommending to the Off-Campus Housing Office removal from or reinstatement upon lists of off-campus housing, so as to ensure that listed housing is available on a nondiscriminatory basis (N.B. any final action taken by the University shall be preceded by proper notice to the property owner involved, and an opportunity to be heard); conducting reviews of compliance with the Campus Affirmative Action Plan; initiating and carrying out programs for the elimination and prevention of racism and sexism on campus; distributing this code and informing the campus community of the interpretations of its provisions; sending periodic reports to the chancellor and to the Senate Adjunct Committee on Human Relations concerning the Human Relations Programs; and participating to the extent set forth herein in formal human relations grievance actions

G. For each of the colleges of the campus, the Division of Administrative Affairs, and the Division of Student Affairs, there shall be an equity officer, who is designated in accordance with the Affirmative Action Plan and who has the duties specified by the Campus Affirmative Action Plan and like duties with respect to the forms of discrimination prohibited by this code

Article II Coverage

A. Kinds of Discrimination Prohibited:
   1. Discrimination in employment, job placement, promotion, or other economic benefits on the basis of race, color, creed, sex, marital status, personal appearance, age, national origin, political affiliation, physical or mental handicap, or on the basis of the exercise of rights secured by the First Amendment of the United States Constitution.
   2. Discrimination in criteria of eligibility for access to residence, or for admission to and otherwise in relation to educational, athletic, social, cultural, or other activities of the campus because of race, color, creed, sex, marital status, personal appearance, age, national origin, political affiliation, physical or mental handicap, or

on the basis of the exercise of rights secured by the First Amendment of the United States Constitution.

B. For the purposes of this code, "personal appearance" means the outward appearance of any person, irrespective of sex, with regard to bodily condition or characteristics, manner or style of dress, and manner or style of personal grooming, including, but not limited to, hair style and beards. It shall not relate, however, to the requirement of cleanliness, uniforms, or prescribed standards, when uniformly applied for admittance to a campus facility, or when uniformly applied to a class of employees, or when such bodily conditions or characteristics, or manner or style of dress or personal grooming presents a danger to the health, welfare or safety of any individual.

C. This code shall apply to the campus community. The term "campus community" is limited to Campus students, faculty, and staff, and to departments, committees, offices and organizations under the supervision and control of the campus administration.

D. Exceptions
   1. The enforcement of Federal, State or County laws and regulations does not constitute prohibited discrimination for purposes of this code. Separate housing or other facilities for men and women, mandatory retirement-age requirements, separate athletic teams when required by athletic conference regulations and political, religious and ethnic/cultural clubs are not prohibited
   2. Discrimination is not prohibited where based on a bona fide job qualification or a qualification required for the fulfillment of bona fide educational or other institutional goals. Complaints concerning the legitimacy of such qualifications may be the subject of human relations grievance actions
   3. The provisions of this code shall not apply to potential students or potential employees of the University. However, applicants for admission or employment who believe they have been discriminated against by any part of the campus community may convey such belief together with all relevant facts to the Office of Human Relations Programs, for informational purposes.
   4. The grievance procedures under this code shall not apply to judgments concerning academic performance of students (e.g., grades, dissertation defenses), pending further study and action by the College Park Senate and University Administration.
   5. The campus, with the advice and approval of the Attorney General's Office, shall review on a continuing basis all new laws and regulations that apply to this campus to determine if any shall require changes in the coverage or exceptions to coverage of this code

E. This code shall apply to the campus community in relation to, but not only to, the following:
   1. All educational, athletic, cultural, and social activities occurring on the campus or in another area under its jurisdiction;
   2. All services rendered by the campus to students, faculty, and staff, such as job placement and job recruitment programs and off-campus listings of housing;
   3. University-sponsored programs occurring off campus, including cooperative programs, adult education, athletic events, and any regularly scheduled classes,
   4. Housing supplied, regulated, or recommended by the campus for students, staff and visitors, including fraternities and sororities;
   5. Employment relations between the campus and all of its employees, including matters of promotion in academic rank, academic salary, and termination of faculty status, as limited in III.M

Article III Human Relations Enforcement Procedures

A. In order to identify policies or practices that may reflect discrimination, the Senate Adjunct Committee on Human Relations may request the Office of Human Relations Programs to conduct periodic review of the operation of any unit of the campus. Units shall provide the information necessary for carrying out such reviews. This information shall be submitted through the chancellor's Office. Any such review under the authority granted in this statement of policy shall be undertaken only after specific authorization of the chancellor. In the event that the chancellor fails to authorize an investigation within a reasonable time of the request by the Senate Adjunct Committee on Human Relations, the chair of the Committee shall report that fact, together with reasons as he/she may have received from the chancellor concerning the matter, to the Senate.

B. The Office of Human Relations Programs on its own motion shall identify policies, practices, or patterns of behavior that may reflect discrimination prohibited by this code or that may conflict with any other campus policy concerning human relations or with the Campus Affirmative Action Plan, and shall call these to the attention of the appropriate officials of the unit involved and recommend appropriate action. Those subject to allegations of discrimination shall be afforded all the protections of due process. The office shall endeavor by negotiation to eliminate the alleged discrimination. Where such efforts fail, the office may on its own motion report the matter to the chancellor and to the Senate Adjunct Committee on Human Relations. Documentation of the recommendations by the office in all such cases shall be maintained on file by the office

C. To the maximum extent consistent with the purposes of this code, the confidentiality of personal papers and other records and the principle of privileged communication shall be respected by all persons involved in the enforcement procedures of this code. Nothing in this code shall be construed so as to conflict with the requirements of Article 76A of the Maryland Annotated Code. Persons giving information in connection with the procedures described in this code shall be advised by the person receiving such information of the limits of confidentiality which may properly be observed in code procedures and that all documents may be subject to subpoena in subsequent administrative or judicial proceedings

D. Any member of the campus community who believes that he or she has been or is being discriminated against in ways prohibited by this code may consult informally and confidentially with the unit EEEO Officer and/or the equity officer and/or the Office of Human Relations Programs prior to filing a formal complaint.

E. The Office of Human Relations Programs shall receive formal complaints from any member or group within the campus community claiming to be aggrieved by alleged discrimination prohibited by this code and/or any other campus document or policy relating to human relations practices. Such complaints should give in writing the names of complainant(s) and respondent(s) and the time, the place, and a specific description of the alleged discrimination. Complaints shall be submitted to the Office of Human Relations Programs, or else to the unit EEEO Officer or the equity officer. Complaints must be submitted within one hundred and twenty (120) days of the alleged discrimination act(s), or within one hundred and twenty (120) days of the first date by which the complainant reasonably has knowledge thereof. Complaints not submitted directly to the Office of Human Relations Programs shall be forwarded to the Office of Human Relations Programs within five (5) working days of their receipt. Copies of the complaint shall be forwarded by the Office of Human Relations Programs to the respondent and to the appropriate unit chair or director, dean, or vice chancellor

F. Complainants under this code shall be required, as a condition precedent, to waive any alternative campus administrative procedure that may then be available. A complaint that has been heard under some alternative campus procedure cannot subsequently be heard under the procedure of this code. In the case of a complaint heard under the Classified Employees Grievance Procedure, this restriction shall apply only when the complaint has entered Step Three of that procedure

G. The Office of Human Relations Programs and/or the equity officer shall ensure that each complainant is informed of his/her right to file the complaint with the appropriate State and Federal agencies. Forms for complaints to State and Federal agencies will be provided or the complainant will be informed where they are available

H. All complaints of discrimination that are not connected with the official functions of the campus or not falling within the scope of discrimination prohibited by this code shall be referred to the appropriate campus, municipal, County, State, or Federal agencies by the Office of Human Relations Programs

I. After a complaint has been filed, the Office of Human Relations Programs shall promptly undertake an informal investigation in order to make a preliminary determination as to whether or not the subject matter of the complaint falls within the code, and whether or not there is probable cause for the complaint. This finding shall be reported to the complainant, the respondent, the chancellor, and the chair of the Senate Adjunct Committee on Human Relations. The burden of proof in this investigation and throughout these enforcement procedures rests with the complainant.

J. If the finding is that there is not probable cause to believe that discrimination has been or is being committed within the scope of this code, the Office of Human Relations Programs may dismiss the complaint. Such dismissal shall be reported to the complainant, the respondent, the chancellor, and the chair of the Senate Adjunct Committee on Human Relations. The complainant in such a case may appeal the dismissal of the case to the Senate Adjunct Committee on Human Relations, which may direct that a Human Relations Grievance Committee conduct a grievance hearing according to the procedures set forth herein, if in the judgment of the Senate Adjunct Committee on Human Relations there is probable cause to believe that discrimination has been or is being committed within the scope of this Code. The Senate Adjunct Committee on Human Relations shall have access to the complaint file for this purpose. A record of its deliberations shall be placed in the file according to the procedures established by the Office of Human Relations Programs. If the committee finds no probable cause, it may dismiss the complaint, and report such dismissal to the complainant, the respondent, and the chancellor.

K. If the finding is that there is probable cause to believe that discrimination has been or is being committed within the scope of this code, the Office of Human Relations Programs shall endeavor to eliminate the alleged discrimination by conference conciliation and persuasion. If by this process, an agreement is reached for elimination of the alleged discrimination, the agreement shall be reduced to writing and signed

by the respondent, the complainant and the director of the Office of Human Relations Programs. The agreement shall be available to the chancellor, the equity officer, and to the chair of the Senate Adjunct Committee on Human Relations, upon request

L. If a finding of probable cause is made but no mutually satisfactory solution can be reached under the procedures outlined in section K immediately preceding, the Office of Human Relations Programs shall initiate the following procedure: the Office shall notify the Senate Adjunct Committee on Human Relations of the failure to reach a mutually satisfactory solution, whereupon, providing the complainant requests in writing a Human Relations Grievance Hearings, a Human Relations Grievance Committee shall be selected according to the procedures described in Article IV following. Grievance hearing shall be closed unless both parties to the dispute agree that the hearing, or any part thereof, shall be open to the public. All parties to the dispute shall be sent within five (5) working days of the written request of such a hearing, written notification of the time and place of the beginning of the hearing and a specific statement of the charges. Hearings shall be held as promptly as is consistent with allowing adequate time for the parties to prepare their cases. Continuances may be granted within the discretion of the Office of Human Relations Programs. All parties shall have ample opportunity to present their facts and arguments in full during the hearing. All findings, recommendations, and conclusions by the Grievance Committee shall be based solely on the evidence presented during the hearing, and shall be based on a preponderance of the evidence having probative effect.

The burden of proof rests with the complainant. The Grievance Committee may be assisted by an adviser. All the parties to the dispute and the Grievance Committee may invite persons to testify during the hearing. Each side shall have the right to cross-examine witnesses. Each party has the right to be represented by counsel or other representative, but the University has no obligation to provide such counsel for any party to the dispute. If a party intends to be represented by legal counsel during the hearing, he/she shall inform the Office of Human Relations Programs of this fact no later than seventy-two (72) hours prior to the hearing, and that office shall provide that information to the other party or parties. A verbatim record shall be kept of all sessions in which testimony and evidence are presented regarding the case, and this record shall be made available to all parties to the dispute at the conclusion of the proceedings. Upon request the chair of the Grievance Committee may, in his or her discretion, recess the hearing to permit review of the record by one or more parties in the conduct of their case.

The chair of a Human Relations Grievance Committee with the advice of the adviser, if there is one, shall rule on all matters of procedure and admissibility of evidence. Any member of the committee not concurring in the ruling of the chair may request a closed session of the committee for debate on the point. A majority vote of the committee will determine the final decision.

Formal rules of evidence shall not be applicable to any hearing before a Human Relations Grievance Committee, and any evidence or testimony that the committee believes to be relevant to a fair determination of the complaint may be admitted. The committee reserves the right to exclude incompetent, irrelevant, immaterial and repetitious evidence.

M. In cases of allegations regarding prohibited discrimination concerning academic employment matters, a Human Relations Grievance Committee shall not substitute its judgment of academic competence for the judgment of the appropriate colleagues of the complainant. The function of the Grievance Committee shall be to determine
   a. whether there were clearly enunciated University, campus and department standards, policies, procedures, and priorities by which to assess the merit of the complaint, and whether the complainant was given a reasonable opportunity to demonstrate his/her academic merit;
   b. whether the stated standards, policies, procedures, and priorities were applied to the complainant in a nondiscriminatory manner.

N. Within ten (10) working days after hearing all the evidence and arguments, the Human Relations Grievance Committee shall prepare a written decision based solely on the evidence presented at the hearing. This decision shall include a summary of the evidence before the committee and the committee's findings as to whether or not a violation of the code has occurred, and the recommendations of the committee. Grievance Committees may recommend whatever forms of relief they deem appropriate, but must take due cognizance of the limitations imposed by State law and by the procedures established by the Board of Regents, for example, the procedures by which promotion in academic rank is achieved. Within five (5) working days after the decision has been filed in the Office of Human Relations Programs, the director of that office will formally notify all parties to the dispute, the chancellor, and the Senate Adjunct Committee on Human Relations of the decision.

O. The chancellor shall within ten (10) working days of receipt of the decision of the Human Relations Grievance Committee issue an order specifying what actions, if any, must be taken by individuals or groups found to be guilty of violating the provisions of this code.

P. When a hearing has been scheduled by an outside agency or court, the Office of Human Relations Programs may, with the approval of the Senate Adjunct Committee on Human Relations, prior to the convening of a Human Relations Grievance Committee to hear a case, postpone or terminate the campus grievance proceedings when such postponement or termination is in its judgment warranted by administrative considerations such as staff limitations and workload, or at the request of a party upon a showing that the campus hearing will either conflict with the off-campus hearing, or that participation in the campus hearing will unreasonably burden a party's preparation of his/her case or otherwise work to his/her prejudice. Such postponement or termination shall be reported to the complainant, respondent, and chancellor. In any case where a complaint has been the subject of prior administrative or judicial resolution or where a complaint becomes the subject of such resolution during the course of proceedings under this code, the procedures of this code will not be applicable or will terminate, as the case may be.

Q. The chancellor shall provide a written explanation of the order whenever that order is not in keeping with the findings and recommendations of the Human Relations Grievance Committee. This explanation shall be sent to all parties to the dispute, to the chair of the Senate Adjunct Committee on Human Relations, to the director of the Human Relations Programs, and to the chair of the Senate. The chair of the Senate Adjunct Committee on Human Relations shall report to the Senate Executive Committee concerning the order and explanation at the next meeting of the Executive Committee, and that body shall put the matter on the agenda of the next meeting of the Senate.

R. When required by law, copies of the Human Relations Grievance Committee's findings and recommendations and of the Chancellor's order and explanation, if any, shall be sent to the State and Federal agencies charged with enforcement of Article 49B of the Annotated Code of Maryland and the Equal Employment Opportunity Act of 1968 or their successors.

S. When a complainant receives a decision on his/her charge of discrimination from a Human Relations Grievance Committee that decision shall not be subject to review under any grievance procedure in force on the campus.

T. No affirmative relief shall be made to a complainant by the University unless the complainant executes the following release as part of a settlement agreement.

The complainant hereby waives, releases, and covenants not to sue The University of Maryland or its officers, agents, or employees with respect to any matters that were or might have been alleged as charges filed under the Human Relations Code in the instant case, subject to performance by The University of Maryland, its officers, agents, and employees, of the promises contained in this settlement agreement.

Article IV Constitution of Human Relations Grievance Committee

A. A Human Relations Grievance Committee shall consist of five members selected by an affirmative vote of at least two members of a selection panel consisting of
   1. The vice chancellor of the unit of the campus within which the alleged discrimination falls. In cases of disputed jurisdiction, decisions as to which vice chancellor shall participate will be made by the several vice chancellors.
   2. The director of the Office of Human Relations Programs.
   3. The chair of the Senate Adjunct Committee on Human Relations.

   If any of these persons is unable to participate, he or she shall designate a suitable replacement.

B. The selection of a Human Relations Grievance Committee shall be made in such a way as to promote a fair and impartial judgment. An effort shall be made to constitute the Grievance Committee of persons reasonably familiar with the kind of employment or other situation that the case concerns.

C. A determined effort shall be made to gain the consent of complainant and respondent concerning the membership of the Grievance Committee. If in the judgment of the selection panel such efforts become unreasonably prolonged, membership will be determined by majority vote of the selection panel.

D. None of the members of a Grievance Committee shall have been involved in the action that is the subject of the complaint. This selection panel shall remove a member of a Grievance Committee whenever it finds that member to have a personal involvement in that case; and may excuse a member from serving on the Grievance Committee on grounds of illness or on other reasonable grounds.

E. Members of the Senate Adjunct Committee on Human Relations shall not be eligible concurrently for inclusion on Human Relations Grievance Committees.

F. The chair of a Human Relations Grievance Committee shall be elected by the members of the committee.

G. Members of a Human Relations Grievance Committee and those officially involved in a hearing shall not be penalized either academically

or financially for time missed from work or classes during official meetings of the committee.

Article V The Equal Education and Employment Opportunity Officer

A. Equal Education and Employment Opportunity Officers shall be instrumental in the implementation of the Human Relations Code within each unit of the College Park Campus.
B. Employees on all levels within each unit of the campus will have access to the assistance of an EEEO Officer. In non-academic units, EEEO Officers shall be elected by unit employees under the supervision of the equity officer within whose responsibility the unit falls, or shall be selected by the unit director in consultation with the appropriate equity officer, in either case in accordance with the Affirmative Action Plan of that unit. EEEO Officers in the academic colleges shall be chosen in the manner prescribed by the council of each college.
C. The functions of EEEO Officers shall include but not be limited to:
   1. Advising unit administrators with respect to the preparation plans, procedures, regulations, reports, and other matters pertaining to the Campus Human Relations Program.
   2. Evaluating periodically the effectiveness and sufficiency of unit Affirmative Action Plans and other unit plans in relation to the goals of this code, and reporting these to unit administrators with recommendations as to what improvements or corrections are needed.
   3. Participating in the development of policies and programs within units with respect to hiring and recruitment, training and upgrading, and in all matters pertaining to the elimination of discrimination prohibited by this code. If a unit fails to develop policies and programs of this nature, it is the task of the EEEO officer to act in an advocacy role and call this fact first to the attention of the unit administrator, and if no responsive action ensues, then to the Collegiate Assistant for Affirmative Action. The EEEO officer is free at all times to report such cases directly to the Office of Human Relations Programs and the Senate Adjunct Committee on Human Relations.
   4. Serving in a liaison capacity between the unit to which he/she is assigned and all segments of its personnel and attempting to remedy problems brought to his/her attention regarding alleged discrimination.
   5. Advising students or employees of the unit who have reason to believe that discrimination as defined in this code is occurring. At the request of the aggrieved person the EEEO officer shall keep any or all aspects of the grievance confidential until a formal complaint has been filed. If the aggrieved so requests, the EEEO officer shall attempt to resolve the matter, calling upon the assistance of the equity officer where appropriate. The EEEO officer will keep a record of such advisory and conciliatory activities and periodically brief the equity officer.
   6 Advising and otherwise aiding complainants in making formal complaints under this code. When a complaint is filed with an EEEO officer, the complaint shall be forwarded by that officer within five (5) working days to the equity officer and the Office of Human Relations Programs. The EEEO officer shall be available to assist in a preliminary investigation of the complaint conducted under the general supervision of the Office of Human Relations Programs, to determine whether there is probable cause to believe that prohibited discrimination has occurred.
   7 Making recommendations to the Office of Human Relations Programs to help facilitate human relations programs on campus.
   8. Assisting units in publicizing the functions of EEEO officers.
   9. Collecting pertinent information regarding hiring, upgrading and promotion opportunities within units and disseminating such information to appropriate personnel.
D. The EEEO officer shall have the full support of the unit administration, the college administration, and the Office of Human Relations Programs. The EEEO officer shall be afforded reasonable time from other regular duties to perform the functions of the office. These functions shall qualify as part of a workday in the case of a staff member and as partial fulfillment of required committee loads in the case of faculty. The EEEO officer shall be free from interference, coercion, harassment, discrimination, or unreasonable restraints in connection with the performance of the duties specified in this code.

Article VI Effective Date

This code shall be effective as of October 18, 1976, and shall apply only to those complaints alleging discriminatory acts that occurred on or after that date.

Appendix B: Campus Policy and Procedures on Sexual Harassment

I. Policy

The University of Maryland, College Park, is committed to maintaining a work and learning environment in which students, faculty, and staff can develop intellectually, professionally, personally, and socially. Such an environment must be free of intimidation, fear, coercion, and reprisal. The Campus prohibits sexual harassment. Sexual harassment may cause others unjustifiable offense, anxiety and injury. Sexual harassment threatens the legitimate expectation of all members of the campus community that academic or employment progress is determined by the publicly stated requirements of job and classroom performance, and that the campus environment will not unreasonably impede work or study.

Sexual harassment by University faculty, staff, and students is prohibited. This constitutes Campus policy. Sexual harassment may also constitute violations of the criminal and civil laws of the State of Maryland and the United States. For the purpose of this Campus policy, sexual harassment is defined as: (1) unwelcome sexual advances; or (2) unwelcome requests for sexual favors; and (3) other behavior of a sexual nature where:

A. Submission to such conduct is made either explicitly or implicitly a term or condition of an individual's employment or participation in a University-sponsored educational program or activity; or
B. Submission to or rejection of such conduct by an individual is used as the basis for academic or employment decision affecting that individual, or
C. Such conduct has the purpose or effect of unreasonably interfering with an individual's academic or work performance, or of creating an intimidating, hostile, or offensive educational or working environment.

In assessing whether a particular act constitutes sexual harassment forbidden under this policy, the standard shall be the perspective of a reasonable person within the College Park Campus community. The rules of common sense and reason shall prevail. Allegations of sexual harassment shall be judged with attention to the facts particular to the case and the context in which the alleged incident(s) occurred.

Conduct prohibited under this policy may manifest itself in many different ways. Sexual harassment may, for example, be as undisguised as a direct solicitation of sexual favors, or solicitation accompanied by overt threats. Harassment may also be implied, arising from the relative situation of the parties. In this regard, the following types of acts are more likely-than-not to result in allegations of sexual harassment: unwelcome physical contact, sexual remarks about a person's clothing, body, or sexual relations, conversation of a sexual nature or similar jokes and stories, and the display of sexually explicit matenals in the workplace or used in the classroom which are without defensible educational purpose.

Sexual harassment may occur within a variety of relationships. It may occur among peers. It may occur where no relation exists between the parties other than being co-employees, or co-students. Especially injurious, on the other hand, is harassment in relationships characterized by an inequality of power, where one party has institutional authority over the other. Inherent in these relationships is the power and fear of reprisal. Typically, such relationships are found between employer and employee; senior faculty and junior faculty; graduate teaching assistant and undergraduate, and faculty and student, when the student is enrolled in a faculty member's class or when the student is in a continuing position to require evaluation or work or letters of recommendation from the faculty. Such relationships can be immediate, here and now, or based upon future expectations, e.g., the need for future evaluations and references. Sexual harassment may occur between persons of the same or different genders.

Education and awareness are the best tools for the elimination of sexual harassment. The Campus is committed to taking appropriate action against those who violate the provisions of the Policy. The Campus is committed to protecting targets of harassment from retaliation.

II. PROCEDURES

Individuals who believe themselves subjected to an incident of sexual harassment should be aware that there are many ways to bring it to the attention of the University, and, where proper, obtain redress or protection. There is an informal route. There are also more formal procedures of long-standing which are sufficiently broad to deal with sexual harassment. Preventing sexual harassment is a responsibility of the entire campus community. The Campus has made this a priority, but ultimately, no satisfactory investigation or resolution of a complaint can occur without the initiative and continuous cooperation of the

person who feels injured. Similarly, allegations of sexual harassment are extremely serious, with potential for great harm to all persons if ill-conceived or without foundation. Procedures which implement campus policy recognize that potential. The Campus is committed to protecting the rights of the alleged offender as well as the offended.

A. Informal Consideration

An incident of sexual harassment may be reported to any Campus or University official or faculty member, including an individual's supervisor, department chair or dean, the Director of Personnel, a departmental or college equity officer, the Director of the Office of Human Relations, and to the Chancellor's Legal Office (454-4671). When an individual receives a report of sexual harassment, he or she will notify the Legal Office prior to taking any action to investigate or resolve the matter informally. The Legal Office will normally manage and coordinate all matters relating to complaints. Complainants will be advised of relevant campus policies and procedures, and the informal and formal means of resolving the matter will be explained. While a written complaint is not required to initiate an informal investigation, the Legal Office must receive a signed complaint from the offended person before any sanctions or other action can be undertaken against an individual for sexual harassment. If the matter is to be investigated, consideration shall be given to the situation and wishes of the complainant. The investigation of a complaint will include discussing the matter with the person accused of sexual harassment. The findings of the investigation shall be confidentially reported to the Chancellor and to the relevant vice chancellor, dean, chairman or supervisor for any necessary action. Sanctions for sexual harassment may range from reprimand to termination, depending upon the circumstances of the case.

B. Formal Complaints

Formal grievance procedures for resolving sexual harassment complaints are available based on the classification of the aggrieved person. All faculty members may file with the dean of their academic unit under the Faculty Grievance Procedure contained within the *Faculty Handbook of the College Park Campus, University of Maryland*. Associate Staff employees may file with the Employee Specialist under the Associate Staff Grievance Procedure contained within the *Personnel Policies and Rules for Associate Staff Employees of the University of Maryland*. Office of Personnel, 1129 South Administration Building, 454-4811. Classified employees may file with the Employee Specialist under the Classified Grievance Procedure contained within *The Handbook of Classified Employees*, Office of Personnel, 1129 South Administration Building, 454-4811. Students may file under the Code of Student Conduct, Office of Judicial Programs, 2108 North Administration Building, 454-2927. Faculty, associate staff, classified staff, and students may file under the *UMCP Human Relations Code* with a Campus unit equity administrator or the Campus Compliance Officer, Office of Human Relations Program, 1107 Hornbake Library, 454-4124.

Appendix C: Code of Student Conduct and Annotations

Approved by the Board of Regents January 25, 1980

Note: Students subject to disciplinary charges should request a copy of the document **Preparing for a Hearing,** available in the Judicial Programs Office.

(Footnotes that appear throughout the *Code of Student Conduct* refer to the Annotations beginning on page 140.)

Rationale

1. The primary purpose for the imposition of discipline in the University setting is to protect the campus community. Consistent with that purpose, reasonable efforts will also be made to foster the personal and social development of those students who are held accountable for violations of University regulations.[1]

Definitions

2. When used in this code:[2]
   (a) the term "aggravated violation" means a violation that resulted or foreseeably could have resulted in significant damage to persons or property or that otherwise posed a substantial threat to the stability and continuance of normal University or University sponsored activities.
   (b) the term "cheating" means intentionally using or attempting to use unauthorized materials, information or study aids in any academic exercise.
   (c) the term "distribution" means sale or exchange for personal profit.
   (d) the term "fabrication" means intentional and unauthorized falsification or invention of any information or citation in an academic exercise.
   (e) the term "group" means a number of persons who are associated with each other and who have not complied with University requirements for registration as an organization.
   (f) the terms "institution" and "University" mean The University of Maryland, College Park.
   (g) the term "organization" means a number of persons who have complied with University requirements for registration.
   (h) the term "plagiarism" means intentionally or knowingly representing the words or ideas of another as one's own in any academic exercise.
   (i) the term "reckless" means conduct which one should reasonably be expected to know would create a substantial risk of harm to persons or property or which would otherwise be likely to result in interference with normal University or University sponsored activities.[3]
   (j) the term "student" means a person taking or auditing courses at the institution either on a full or part-time basis.[4]
   (k) the term "University premises" means buildings or grounds owned, leased, operated, controlled or supervised by the University.
   (l) the term "weapon" means any object or substance designed to inflict a wound, cause injury, or incapacitate, including, but not limited to, all firearms, pellet guns, switchblade knives, knives with blades five or more inches in length, and chemicals such as "Mace" or tear-gas.
   (m) the term "University sponsored activity" means any activity on or off campus that is initiated, aided, authorized, or supervised by the University.
   (n) the terms "will" or "shall" are used in the imperative sense.

Interpretation of Regulations

3. Disciplinary regulations at the University are set forth in writing to give students general notice of prohibited conduct. The regulations should be read broadly and are not designed to define misconduct in exhaustive terms.

Inherent Authority

4. The University reserves the right to take necessary and appropriate action to protect the safety and well-being of the campus community.[5]

Student Participation

5. Students are asked to assume positions of responsibility in the University judicial system so that they might contribute their skills and insights to the resolution of disciplinary cases. Final authority in disciplinary matters, however, is vested in the University administration and in the Board of Regents.

Standards of Due Process

6. Students subject to expulsion, suspension[6] or disciplinary removal from University housing[7] will be accorded a judicial board hearing as specified in part 28 of this code. Students subject to less severe sanctions will be entitled to an informal disciplinary conference[8], as set forth in parts 30 and 31.
7. The focus of inquiry in disciplinary proceedings shall be the guilt or innocence of those accused of violating disciplinary regulations. Formal rules of evidence shall not be applicable, nor shall deviations from prescribed procedures necessarily invalidate a decision or proceeding, unless significant prejudice to a student respondent or the University may result.[9]

Violations of Law and Disciplinary Regulations

8. Students may be accountable to both civil authorities and to the University for acts that constitute violations of law and of this code.[10] Disciplinary action at the University will normally proceed during the pendency of criminal proceedings and will not be subject to challenge on the ground that criminal charges involving the same incident have been dismissed or reduced.

Prohibited Conduct

9. The following misconduct is subject to disciplinary action:
   (a) intentionally or recklessly causing physical harm to any person on University premises or at University sponsored activities, or intentionally or recklessly causing reasonable apprehension of such harm.

(b) unauthorized use, possession or storage of any weapon on University premises or at University sponsored activities
(c) intentionally initiating or causing to be initiated any false report, warning or threat of fire, explosion or other emergency on University premises or at University sponsored activities.
(d) intentionally or recklessly interfering with normal University or University sponsored activities, including, but not limited to, studying, teaching, research, University administration, or fire, police or emergency services.
(e) knowingly violating the terms of any disciplinary sanction imposed in accordance with this code.
(f) intentionally or recklessly misusing or damaging fire safety equipment
(g) unauthorized distribution or possession for purposes of distribution of any controlled substance or illegal drug[11] on University premises or at University sponsored activities
(h) intentionally furnishing false information to the University.
(i) forgery, unauthorized alteration, or unauthorized use of any University document or instrument of identification.
(j) all forms of academic dishonesty, including cheating, fabrication, facilitating academic dishonesty, and plagiarism.*
(k) intentionally and substantially interfering with the freedom of expression of others on University premises or at University sponsored activities.[12]
(l) theft of property or of services on University premises or at University sponsored activities; knowing possession of stolen property on University premises or at University sponsored activities.
(m) intentionally or recklessly destroying or damaging the property of others on University premises or at University sponsored activities.
(n) failure to comply with the directions of University officials, including campus police officers, acting in performance of their duties.
(o) violation of published University regulations or policies, as approved and compiled by the Vice Chancellor for Student Affairs.[13] Such regulations or policies may include the residence hall contract, as well as those regulations relating to entry and use of University facilities, sale or consumption of alcoholic beverages, use of vehicles** and amplifying equipment, campus demonstrations, and misuse of identification cards
(p) use or possession of any controlled substance or illegal drug on University premises or at University sponsored activities.[14]
(q) unauthorized use or possession of fireworks on University premises.

* *Allegations of academic dishonesty are processed in accordance with the procedures set forth in graduate and undergraduate catalogs.*

** *Parking and Traffic Violations may be processed in accordance with procedures established by the Vice Chancellor for Student Affairs*

Sanctions

10. Sanctions for violations of disciplinary regulations consist of:
(a) EXPULSION: permanent separation of the student from the University. Notification will appear on the student's transcript. The student will also be barred from University premises. (Expulsion requires administrative review and approval by the Chancellor and may be altered, deferred, or withheld.)
(b) SUSPENSION: separation of the student from the University for a specified period of time. Permanent notification will appear on the student's transcript. The student shall not participate in any University sponsored activity and may be barred from University premises. Suspended time will not count against any time limits of the Graduate School for completion of a degree. (Suspension requires administrative review and approval by the Vice Chancellor for Student Affairs and may be altered, deferred, or withheld.)
(c) DISCIPLINARY PROBATION: the student shall not represent the University in any extracurricular activity or run for or hold office in any student group or organization. Additional restrictions or conditions may also be imposed. Notification will be sent to appropriate University offices, including the Office of Campus Activities
(d) DISCIPLINARY REPRIMAND: the student is warned that further misconduct may result in more severe disciplinary action.
(e) RESTITUTION: the student is required to make payment to the University or to other persons, groups, or organizations for damages incurred as a result of a violation of this code.
(f) OTHER SANCTIONS: other sanctions may be imposed instead of or in addition to those specified in sections (a) through (e) of this part. For example, students may be subject to dismissal from University housing for disciplinary violations that occur in the residence halls. Likewise, students may be subject to restrictions upon or denial of driving privileges for disciplinary violations involving the use or registration of motor vehicles. Work or research projects may also be assigned
11. Violations of sections (a) through (g) in part nine of this code may result in expulsion from the University,[15] unless specific and significant mitigating factors are present. Factors to be considered in mitigation shall be the present demeanor and past disciplinary record of the offender, as well as the nature of the offense and the severity of any damage, injury, or harm resulting from it.
12. Violations of sections (h) through (l) in part nine of this code may result in suspension from the University, unless specific and significant mitigating factors as specified in part eleven are present.
13. Repeated or aggravated violations of any section of this code may also result in expulsion or suspension or in the imposition of such lesser penalties as may be appropriate.
14. Attempts to commit acts prohibited by this code shall be punished to the same extent as completed violations.[16]

Interim Suspension[17]

15. The Vice Chancellor for Student Affairs or a designee may suspend a student for an interim period pending disciplinary proceedings or medical evaluation, such interim suspension to become immediately effective without prior notice, whenever there is evidence that the continued presence of the student on the University campus poses a substantial threat to himself or to others or to the stability and continuance of normal University functions.
16. A student suspended on an interim basis shall be given an opportunity to appear personally before the Vice Chancellor for Student Affairs or a designee within five business days from the effective date of the interim suspension in order to discuss the following issues only:
(a) the reliability of the information concerning the student's conduct, including the matter of his identity;
(b) whether the conduct and surrounding circumstances reasonably indicate that the continued presence of the student on the University campus poses a substantial threat to himself or to others or the stability and continuance of normal University functions.

The Judicial Programs Office

17. The Judicial Programs Office directs the efforts of students and staff members in matters involving student discipline. The responsibilities of the office include:
(a) determining the disciplinary charges to be filed pursuant to this code.
(b) interviewing and advising parties (18) involved in disciplinary proceedings
(c) supervising, training, and advising all judicial boards
(d) reviewing the decisions of all judicial boards.[19]
(e) maintaining of all student disciplinary records
(f) developing of procedures for conflict resolution
(g) resolving of cases of student misconduct, as specified in parts 30 and 31 of this code
(h) collecting and dissemination of research and analysis concerning student conduct.
(i) submitting of a statistical report each semester to the campus community, reporting the number of cases referred to the office, the number of cases resulting in disciplinary action, and the range of sanctions imposed.[20]

Judicial Panels

18. Hearings or other proceedings as provided in this code may be held before the following boards or committees:
(a) CONFERENCE BOARDS, as appointed in accordance with part 31 of this code.
(b) RESIDENCE BOARDS, as established and approved by the Vice Chancellor for Student Affairs.[21] Students residing in group living units owned, leased, operated, or supervised by the University may petition the Vice Chancellor for authority to establish judicial boards. Such boards may be empowered to hear cases involving violations of this code, as prescribed by the Vice Chancellor for Student Affairs.
(c) THE CENTRAL BOARD hears cases involving disciplinary violations that are not referred to Residence Boards or resolved in accordance with parts 30 and 31 of this code. The Central Board is composed of five full-time students, including at least two graduate students.
(d) THE APPELLATE BOARD hears appeals from Residence boards, the Central Board, and ad hoc boards, in accordance with part 39 of this code. The Appellate Board is composed of five full-time students, including at least two graduate students.
(e) AD HOC BOARDS may be appointed by the Director of Judicial Programs when a Conference Board, a Residence Board, the Central Board, the Appellate Board, or the Senate Adjunct Committee are unable to obtain a quorum or are otherwise unable to hear a case.[22] Each ad hoc board shall be composed of three members, including at least one student.
(f) THE SENATE COMMITTEE ON STUDENT CONDUCT hears appeals as specified in part 38 of this code. The committee also approves the initial selection of all judicial board members, except members of conference and ad hoc boards.[23]

19 The presiding officer of each judicial board and of the Senate Adjunct Committee on Student Conduct may develop bylaws that are not inconsistent with any provision in this code. Bylaws must be approved by the Director of Judicial Programs.[24]

Selection and Removal of Board Members

20 Members of the various judicial boards are selected in accordance with procedures developed by the Director of Judicial Programs.
21 Members of conference and ad hoc boards are selected in accordance with parts 31 and 18 (e), respectively.
22. Prospective members of the Central Board and the Appellate Board are subject to confirmation by the Senate Committee on Student Conduct.
23. Members of the Senate Committee on Student Conduct are selected in accordance with the bylaws of the University Senate.
24 Prior to participating in board or committee deliberations, new members of the Senate Adjunct Committee on Student Conduct and of all judicial boards, except conference and ad hoc boards, will participate in one orientation session offered at least once each academic year by the Judicial Programs Office.
25. Student members of any judicial board or committee who are charged with any violation of this code or with a criminal offense[25] may be suspended from their judicial positions by the Director of Judicial Programs during the pendency of the charges against them. Students convicted for any such violation or offense may be disqualified from any further participation in the University judicial system by the Director of Judicial Programs. Additional grounds and procedures for removal may also be set forth in the bylaws of the various judicial panels.

Case Referrals

26. Any person[26] may refer a student or a student group or organization suspected of violating this code to the Judicial Programs Office. Persons making such referrals are required to provide information pertinent to the case and will normally be expected to appear before a judicial board as the complainant.[27]

Deferral of Proceedings

27. The Director of Judicial Programs may defer disciplinary proceedings for alleged violations of this code for a period not to exceed ninety days. Pending charges may be withdrawn thereafter, dependent upon the good behavior of the respondent.

Hearing Referrals

28. Staff members in the Judicial Programs Office will review case referrals to determine whether the alleged misconduct might result in expulsion, suspension, or disciplinary removal from University housing.[28] Students subject to those sanctions shall be accorded a hearing before the appropriate judicial board. All other cases shall be resolved in the Judicial Programs Office after an informal disciplinary conference, as set forth in parts 30 and 31 of this code.
29. Students referred to a judicial board hearing may elect instead to have their case resolved in accordance with parts 30 and 31. The full range of sanctions authorized by this code may be imposed, although the right of appeal shall not be applicable.

Disciplinary Conferences[29]

30. Students subject to or electing to participate in a disciplinary conference in the Judicial Programs Office are accorded the following procedural protections:
    (a) written notice of charges at least three days prior to the scheduled conference.
    (b) reasonable access to the case file[30] prior to and during the conference.
    (c) an opportunity to respond to the evidence against them and to call appropriate witnesses in their behalf.
    (d) the right to be accompanied and assisted by a representative, in accordance with Part 33 of this code.
31. Disciplinary conferences shall be conducted by the Director of Judicial Programs or a designee.[31] Complex or contested cases may be referred by the Director to a conference board, consisting of one member of the Central Board, one member of the Appellate Board, and a staff member in the Division of Student Affairs. Conference Board members shall be selected on a rotating basis by the Director of Judicial Programs.

Hearing Procedures

32 The following procedural guidelines shall be applicable in disciplinary hearings:
    (a) respondents shall be given notice of the hearing date and the specific charges against them at least five days in advance and shall be accorded reasonable access to the case file, which will be retained in the Judicial Programs Office.
    (b) the presiding officer of any board may subpoena witnesses upon the motion of any board member or of either party and shall subpoena witnesses upon request of the board advisor. Subpoenas must be approved by the Director of Judicial Programs and shall be personally delivered or sent by certified mail, return receipt requested. University students and employees are expected to comply with subpoenas issued pursuant to this procedure, unless compliance would result in significant and unavoidable personal hardship or substantial interference with normal University activities.[32]
    (c) respondents who fail to appear after proper notice will be deemed to have pleaded guilty to the charges pending against them.
    (d) hearings will be closed to the public, except for the immediate members of the respondent's family and for the respondent's representative. An open hearing may be held, at the discretion of the presiding officer, if requested by the respondent.
    (e) the presiding officer of each board shall exercise control over the proceedings to avoid needless consumption of time and to achieve the orderly completion of the hearing. Except as provided in section (o) of this part, any person, including the respondent, who disrupts a hearing may be excluded by the presiding officer or by the board advisor.
    (f) hearings may be tape recorded or transcribed. If a recording or transcription is not made, the decision of the board must include a summary of the testimony which shall be sufficiently detailed to permit review by appellate bodies and by staff members in the Judicial Programs Office.
    (g) any party or the board advisor may challenge a board member on the grounds of personal bias. Board members may be disqualified upon majority vote of the remaining members of the board, conducted by secret ballot,[33] or by the Director of Judicial Programs.
    (h) witnesses shall be asked to affirm that their testimony is truthful and may be subject to charges of perjury, pursuant to part 9 (h) of this code.
    (i) prospective witnesses, other than the complainant and the respondent, may be excluded from the hearing during the testimony of other witnesses. All parties, the witnesses, and the public shall be excluded during board deliberations.
    (j) the burden of proof shall be upon the complainant, who must establish the guilt of the respondent by a preponderance of the evidence.[34]
    (k) formal rules of evidence shall not be applicable in disciplinary proceedings conducted pursuant to this code. The presiding officer of each board shall give effect to the rules of confidentiality and privilege, but shall otherwise admit all matters into evidence which reasonable persons would accept as having probative value in the conduct of their affairs. Unduly repetitious or irrelevant evidence may be excluded.[35]
    (l) respondents shall be accorded an opportunity to question those witnesses who testify for the complainant at the hearing.
    (m) affidavits shall not be admitted into evidence unless signed by the affiant and witnessed by a University employee, or by a person designated by the Director of Judicial Programs.
    (n) board members may take judicial notice of matters which would be within the general experience of University students.[36]
    (o) board advisors may comment on questions of procedure and admissibility of evidence and will otherwise assist in the conduct of the hearing. Advisors will be accorded all the privileges of board members, and the additional responsibilities set forth in this code, but shall not vote. All advisors are responsible to the Director of Judicial Programs and shall not be excluded from hearings or board deliberations by any board or by the presiding officer of any board.
    (p) the Director of Judicial Programs may appoint a special presiding officer to any board in complex cases or in any case in which the respondent is represented by an attorney. Special presiding officers may participate in board deliberations, but shall not vote.[37]
    (q) a determination of guilt shall be followed by a supplemental proceeding in which either party and the board advisor may submit evidence or make statements concerning the appropriate sanction to be imposed. The past disciplinary record[38] of the respondent shall not be supplied to the board by the advisor prior to the supplementary proceeding.
    (r) final decisions of all judicial panels shall be by majority vote of the members present and voting. A tie vote will result in a recommended acquittal in an original proceeding. A tie vote in an appellate proceeding will result in an affirmation of the original decision.

(s) final decisions of all boards, except conference boards, shall be accompanied by a brief written opinion.

Attorneys and Representatives

33 Respondents or complainants participating in any disciplinary proceeding may be accompanied by a representative, who may be an attorney.[39] Parties who wish to be represented by an attorney in a disciplinary proceeding must so inform the Judicial Programs Office in writing at least two business days prior to the scheduled date of the proceeding. Representatives may not appear in lieu of respondents.

Student Groups and Organizations

34 Student groups and organizations may be charged with violations of this code.

35. A student group or organization and its officers may be held collectively [40] or individually responsible when violations of this code by those associated with[41] the group or organization have received the tacit or overt consent or encouragement of the group or organization or of the group's or organization's leaders, officers, or spokesmen.

36. The officers or leaders or any identifiable spokesperson [42] for a student group or organization may be directed by the Vice Chancellor for Student Affairs or a designee to take appropriate action designed to prevent or end violations of this code by the group or organization or by any persons associated with the group or organization who can reasonably be said to be acting in the group's or organization's behalf. Failure to make reasonable efforts to comply with the Vice Chancellor's directive shall be considered a violation of part 9 (n) of this code, both by the officers, leaders, or spokesmen for the group or organization and by the group or organization itself.

37. Sanctions for group or organization misconduct may include revocation or denial of recognition or registration, as well as other appropriate sanctions, pursuant to part 10 (f) of this code.

Appeals

38 Any disciplinary determination resulting in expulsion or suspension[43] may be appealed by the respondent to the Senate Committee on Student Conduct. The Senate Committee shall also hear appeals from denials of petitions to void disciplinary records, pursuant to part 48 of this code.

39 Final decisions of residence boards, the Central Board and ad hoc boards, not involving the sanctions specified in part 38, may be appealed by the respondent to the Appellate Board.[44]

40. Requests for appeals must be submitted in writing to the Judicial Programs Office within seven business days from the date of the letter notifying the respondent of the original decision. Failure to appeal within the allotted time will render the original decision final and conclusive.[45]

41. A written brief in support of the appeal must be submitted to the Judicial Programs Office within ten business days from the date of the letter notifying the respondent of the original decision. Failure to submit a written brief within the allotted time will render the decision of the lower board final and conclusive.[46]

42. Appeals shall be decided upon the record of the original proceeding and upon written briefs submitted by the parties. De novo hearings shall not be conducted.

43. Appellate bodies may:
    (a) affirm the finding and the sanction imposed by the original board.
    (b) affirm the finding and reduce, but not eliminate, the sanction, in accordance with parts 44 and 44 (a) of this code.
    (c) remand the case to the original board, in accordance with parts 44 and 44 (b).
    (d) dismiss the case, in accordance with parts 44 and 44 (c).

44. Deference shall be given to the determinations of lower boards:[47]
    (a) sanctions may only be reduced if found to be grossly disproportionate to the offense.
    (b) cases may be remanded to the original board if specified procedural errors or errors in interpretation of University regulations were so substantial as to effectively deny the respondent a fair hearing, or if new and significant evidence became available that could not have been discovered by a properly diligent respondent before or during the original hearing.[48] The decision of the lower board on remand shall be final and conclusive.
    (c) cases may be dismissed only if the finding is held to be arbitrary and capricious.[49]
    (d) decisions of the Appellate Board shall be recommendations to the Director of Judicial Programs.[50] Decisions of the Senate Committee on Student Conduct shall be recommendations to the Vice Chancellor for Student Affairs.

45. The imposition of sanctions will normally be deferred during the pendency of appellate proceedings, in the discretion of the Director of Judicial Programs.

Disciplinary Files and Records

46 Case referrals may result in the development of a disciplinary file in the name of the respondent, which shall be voided if the respondent is found innocent of the charges.[51] The files of respondents found guilty of any of the charges against them will be retained as a disciplinary record for three years from the date of the letter providing notice of final disciplinary action.[52] Disciplinary records may be retained for longer periods of time or permanently, if so specified in the sanction.

47 Disciplinary records may be voided[53] by the Director of Judicial Programs for good cause, upon written petition of respondents. Factors to be considered in review of such petitions shall include:
    (a) the present demeanor of the respondent.
    (b) the conduct of the respondent subsequent to the violation.
    (c) the nature of the violation and the severity of any damage, injury, or harm resulting from it.

48 Denials of petitions to void disciplinary records shall be appealable to the Senate Committee on Student Conduct, which will apply the standard of review specified in parts 44 and 44 (c). The requirements for appeals as set forth in parts 40 and 41 shall be applicable.[54]

49 Disciplinary records retained for less than ninety days or designated as "permanent" shall not be voided without unusual and compelling justification.[55]

Annotations:

1. The University is not designed or equipped to rehabilitate or incapacitate persons who pose a substantial threat to themselves or to others. It may be necessary, therefore, to remove those individuals from the campus and to sever the institutional relationship with them, as provided in this code of conduct and by other University regulations.*

   Any punishment imposed in accordance with the code may have the value of discouraging the offender and others from engaging in future misbehavior. In cases of minor disciplinary violations, the particular form of punishment may also be designed to draw upon the educational resources of the University to bring about a lasting and reasoned change in behavior. The underlying rationale for punishment need not rest on deterrence or "reform" alone, however. A just punishment may also be imposed because it is "deserved" and because punishment for willful offenses affirms the autonomy and integrity of the offender. The latter concept was well expressed by D.J.B. Hawkins in his essay "Punishment and Moral Responsibility" in 7 Modern Law Review 205:

   > The vice of regarding punishment entirely from the points of view of reformation and deterrence lies precisely in forgetting that a just punishment is deserved. The punishment of men then ceases to be essentially different from the training of animals, and the way is open for the totalitarian state to undertake the forcible improvement of its citizens without regard to whether their conduct has made them morally liable to social coercion or not. But merit and demerit, reward and punishment, have a different significance as applied to men and as applied to animals. A dog may be called a good dog or a bad dog, but his goodness or badness can be finally explained in terms of heredity and environment. A man, however, is a person, and we instinctively recognise that he has a certain ultimate personal responsibility for at least some of his actions. Hence merit and demerit, reward and punishment, have an irreducible individual significance as applied to men. This is the dignity and the tragedy of the human person.

   A similar view was expressed by Justice Powell, dissenting in ***Goss v. Lopez*** (42 L. Ed. 2d 725, 745):

   > Education in any meaningful sense includes the inculcation of an understanding in each pupil of the necessity of rules and obedience thereto. This understanding is no less important than learning to read and write. One who does not comprehend the meaning and necessity of discipline is handicapped not merely in his education but throughout his subsequent life. In an age when the home and church play a diminishing role in shaping the character and value judgments of the young, a heavier responsibility falls upon the schools. When an immature student merits censure for his conduct, he is rendered a disservice if appropriate sanctions are not applied.

2. An effort is made in the code to use a simplified numbering and lettering system, without use of Roman numerals or subsets of letters and numbers. Any part of the code can be found by reference to one number and one letter (e.g., part 10 (a) explains the meaning of expulsion).

3. Culpable conduct should include conscious acts posing a substantial risk of harm to others (e.g., throwing a heavy object out a tenth floor window above a sidewalk). If the act itself, however, is unintended (e.g., if one is distracted by a noise while climbing a flight of stairs and drops a heavy object) the individual may have failed to use reasonable

care, but is not normally deserving of the moral stigma associated with a "conviction" for a disciplinary offense.

4. Former students may be charged for violations that allegedly occurred during their enrollment at the University.

5. Colleges and Universities are not expected to develop disciplinary regulations that are written with the scope or precision of a criminal code. Rare occasions may arise when conduct is so inherently and patently dangerous to the individual or to others that extraordinary action not specifically authorized in the rules must be taken.

6. The terms "suspension" and "interim suspension" are to be distinguished throughout the code and are not interchangeable.

7. Disciplinary removal from University housing should be distinguished from administrative removal for violations of the residence contract. The latter does not leave students with a disciplinary record and does not come under the purview of this code.

8. The standard set forth here represents the minimal procedural protection to be accorded to students charged with most disciplinary violations. Students who are subject to lengthy suspensions or to expulsion may be entitled to more formal procedures, including a hearing with a right to cross-examine the witnesses against them. *Goss v. Lopez 419* U.S. 565 (1975).

9. The Supreme Court has recently rejected the theory that state schools are bound by principles of federal administrative law requiring agencies to follow their own regulations. *Board of Curators, University of Missouri v. Horowitz* 55 L. Ed 2d 124, 136. See, generally, "Violations by Agencies of Their Own Regulations" 87 Harvard Law Review 629 (1974).

10. Respondents in disciplinary proceedings may be directed to answer questions concerning their conduct. Students who refuse to answer on grounds of the Fifth Amendment privilege may be informed that the hearing panel could draw negative inferences from their refusal that might result in their suspension or dismissal. If the student then elects to answer, his statements could not be used against him in either state or federal court. *Garrity v. New Jersey* 385 U.S. 493 (1967). See also *Furutani v. Ewigleben* 297 F. Supp. 1163 (N.D. cal. 1969)

11. The "controlled substances" or "illegal drugs" prohibited in this section are set forth in Schedules I through V in Article 27, part 279 of the *Annotated Code of Maryland.*

12. Colleges and Universities should be a forum for the free expression of ideas. In the recent past, however, unpopular speakers have been prevented from addressing campus audiences by students who effectively "shouted them down." Both Yale and Stanford Universities have treated such actions (which are to be distinguished from minor and occasional heckling) as serious disciplinary violations. See the "Report from the Committee on Freedom of Expression at Yale University" which is available in the Judicial Programs Office.

    The following language from the Yale report may be used to elaborate upon the intent and scope of part 9 (k) of this code:

    1. "There is no right to protest within a University building in such a way that any University activity is disrupted. The administration, however, may wish to permit some symbolic dissent within a building but outside the meeting room, for example, a single picket or a distributor of handbills".

    2. "[A] member of the audience may protest in a silent, symbolic fashion, for example, by wearing a black arm band. More active forms of protest may be tolerated such as briefly booing, clapping hands or heckling. But any disruptive activity must stop [and not be repeated] when the chair or an appropriate University official requests silence.

    3. "Nor are racial insults or any other 'fighting words' a valid ground for disruption or physical attack. The banning or obstruction of lawful speech can never be justified on such grounds as that the speech or the speaker is deemed irresponsible, offensive, unscholarly, or untrue."

13. A compilation of published regulations that have been reviewed and approved by the Vice Chancellor shall be available for public inspection during normal business hours in the Judicial Programs Office.

14. The "controlled substances" or "illegal drugs" prohibited in this section are set forth in Schedules I through V in Article 27, part 279 of the *Annotated Code of Maryland.*

15. This part and parts 12 and 13 represent an attempt to give needed guidance to those who are assessing penalties. Moreover, the direction of the guidance is toward imposition of more severe disciplinary sanctions in serious cases. Nonetheless, the language concerning "mitigating factors" is broad enough to give decision makers considerable leeway to "do justice," depending upon the facts in each case. The burden of establishing facts in mitigation should, of course, be upon the respondent.

16. There does not seem to be any rational basis for imposing less severe penalties for attempts than for completed violations. The authors of the *Model Penal Code*, for example, have written that

    > To the extent that sentencing depends upon the antisocial disposition of the actor and the demonstrated need for a corrective action, there is likely to be little difference in the gravity of the required measures depending on the consummation or the failure of the plan.

    See LaFave, *Criminal Law Treatise* p. 453.

17. These procedures are analogous to those found in the "emergency" disciplinary rules adopted by the Board of Regents in 1971 and are consistent with the formal opinion of the Maryland Attorney General on this subject, dated January 23, 1969. See also *Goss v. Lopez*, C419 U.S. 565 (1975).

    Nothing in this provision would prohibit the Vice Chancellor from modifying the terms of an interim suspension, so long as the hearing requirement specified in part 16 was met. For example, a suspended student might be allowed to enter University premises solely for the purpose of attending classes.

18. Staff members in the Judicial Programs Office should endeavor to arrange a balanced presentation before the various judicial boards and may assist both complainants and respondents.

19. This language does not effect any change in previous policy concerning the powers of judicial boards. All board decisions, including those rendered by Conference Boards, shall be treated as recommendations.

20. See annotation one, supra. The deterrent effect of punishment is diminished if the community is unaware of the number and general nature of sanctions imposed. The Director of Judicial Programs may, for example, arrange for publication of the statistical report in the campus press each semester.

21. Boards established pursuant to this section might include modified versions of the present "Greek" or residence hall boards.

22. It is intended that a quorum will consist of three members (out of five). The authority to appoint ad hoc boards should be broadly construed and might be especially useful, for example, when a judicial board or the Senate Committee is charged with hearing a case involving one of its own members. The final determination as to whether a panel is "unable to hear a case" should be within the discretion of the Director of Judicial Programs.

23. The power of confirmation represents a significant grant of authority to the Senate Committee. The committee is presently underutilized and might best contribute to the judicial system by becoming more intimately involved with it. Moreover, confirmation procedures will give committee members direct contact with board members and will also allow the committee to exercise more control over the quality of Judicial Board decisions.

24. Proposed bylaws must be submitted to the Attorney General for review.

25. It could be a public embarrassment for the University to have a student charged with or convicted of a serious crime sit in judgment over other students in disciplinary proceedings. The various state criminal codes are usually so broad and archaic, however, that automatic suspension or removal should not result from any violation of any law (e.g., New York makes it a criminal misdemeanor for anyone "to dance continuously in a dance contest for twelve or more hours without respite")

26. Case referrals should not be limited to members of the "campus community." A student who assaults another person on campus should not escape University judicial action merely because the person assaulted was a visitor (or, as in a recent case, a former student who had just withdrawn from the University).

27. The Director of Judicial Programs may appoint a trained volunteer from the campus community to serve as the complainant. It would be preferable, however, to employ a "community advocate" to present all disciplinary cases.

    Several measures in the code are designed to restore balance in disciplinary proceedings, even in those cases in which the complainant is inexperienced with administrative adjudication:

    (a) a hearing officer may be appointed in complex or serious cases. See part 32 (p).

(b) the role of attorneys or advisors may be restricted See part 33 and annotation 39

(c) the "disciplinary conference" procedure is designed to eliminate adversary proceedings in minor cases See parts 30–31 and annotation 29.

28. Staff members may consider the mitigating factors specified in part 11 to determine the permissible sanction to be imposed if the respondent is found guilty of charges For example, a student involved in a minor altercation might be charged pursuant to part 9 (a), but referred to a disciplinary conference, thereby precluding the possibility of expulsion or suspension for the alleged misconduct

29. The hearing procedures specified at part 32 need not be followed in disciplinary conferences Instead a disciplinary conference would normally consist of an informal non-adversarial meeting between the respondent and a staff member in the Judicial Programs Office Complainants would not be required to participate, unless their personal testimony was essential to the resolution of a dispositive factual issue in the case. Documentary evidence and written statements could be relied upon, so long as the respondent was given access to them in advance and allowed to respond to them at the conference. Respondents would also be allowed to bring appropriate witnesses with them and might be accompanied by a representative, who may participate in discussions, although not in lieu of participation by the respondent

The conference procedure is designed to reduce the steady growth of unnecessary legalism in disciplinary proceedings. The worst features of the adversary system (including the concept that judicial proceedings are a "contest" to be "won" by clever manipulation of procedural rules) undermine respect for the rule of law Colleges and universities can and should be a testing ground for development of carefully reasoned alternatives to current procedural excesses in the larger society **

Procedures comparable to the disciplinary conference (referred to as "structured conversations") are suggested by David L Kirp in his 1976 Stanford Law Review article "Proceduralism and Bureaucracy: Due Process in the School Setting" 38 Stanford Law Review 841

> The benefits of such conversations in the school setting may better be appreciated by contrasting them with the typical due process hearing Hearings are designed to determine the facts of a particular controversy, and apply predetermined rules to the facts thus found At that point, the function of the hearing is at an end. The wisdom of the underlying substantive rules has no relevance, nor is broader discussion of grievances generally encouraged, unless it is somehow pertinent to the dispute at hand
>
> Conversation knows no such limits It too serves as a vehicle for resolving what are likely to be factually uncomplicated disputes, but it does more than that It enables students to feel that they are being listened to and may encourage them to raise underlying grievances. It provides administrators with a relatively inexpensive vehicle for monitoring, and hence a basis for reshaping institutional relationships. The outcome of these 'orderly thoughtful conversations' may well be decisions different in their particulars from what might otherwise have been anticipated, repeated conversations that touch upon similar student grievances may ultimately lead disciplinarians to reassess whether control is so vital, and collaboration so improbable, as a means of assuring institutional order

The conference procedure would not be used in any case that might result in any form of separation from the University. Accordingly, the procedure appears to meet or exceed the due process requirements set forth by the United States Supreme Court for cases involving suspensions of ten days or less In *Goss v. Lopez* the Court held

> We stop short of construing the Due Process Clause to require, countrywide, that hearings in connection with short suspensions must afford the student the opportunity to secure counsel, to confront and cross-examine witnesses supporting the charge, or to call his own witnesses to verify his version of the incident Brief disciplinary suspensions are almost countless. To impose in each such case even truncated trial-type procedures might well overwhelm administrative facilities in many places and, by diverting resources, cost more than it would save in educational effectiveness Moreover, further formalizing the suspension process and escalating its formality and adversary nature may not only make it too costly as a regular disciplinary tool but also destroy its effectiveness as part of the teaching process
>
> On the other hand, requiring effective notice and an informal hearing permitting the student to give his version of the events will provide a meaningful hedge against erroneous action At least the disciplinarian will be alerted to the existence of disputes about facts and arguments about cause and effect He may then determine himself to summon the accuser permit cross-examination, and allow the student to present his own witnesses In more difficult cases, he may permit counsel In any event his discretion will be more informed and we think the risk of error substantially reduced (42 L Ed 2d 725, 740)

30. The case file consists of materials that would be considered "education records", pursuant to the Family Educational Rights and Privacy Act Personal notes of University staff members or complainants are not included

31. Determinations made in accordance with parts 30 and 31 are not appealable

32. Internal subpoenas may be desirable, since cases have arisen in which complainants or respondents were unable to present an effective case due to the indifference and lethargy of potential witnesses A student who refuses to respond to a subpoena may be charged with a violation of part 9(n) of the code.

The Director of Judicial Programs should not approve a subpoena unless the expected testimony would be clearly relevant. Likewise, a subpoena designed to embarrass or harass a potential witness should not be authorized.

The subpoena power specified here is not designed to reach documents or other materials

33. Board members should be disqualified on a case by case basis only; permanent removal should be accomplished in accordance with part 25. Board members should not be readily disqualified. The term "personal bias" involves animosity toward a party or favoritism toward the opposite party See, generally, Davis, *Administrative Law Treatise* "Bias" Section 12.03.

34. See *Bernstein v. Real Estate Commission* 221 Md 221 (1959), which established the "preponderance" standard for State administrative proceedings.

35. Testimony containing hearsay may be heard, if relevant A final determination should not be based on hearsay alone

36. Every statement or assertion need not be proven For example, board members may take notice that many students commute to the University

37. Student presiding officers are often at a disadvantage when the respondent is represented by an attorney The proceedings might progress more rapidly and efficiently if a special presiding officer were appointed Generally, a staff member in the Judicial Programs Office would be selected for such a responsibility, although other University employees with legal training might also be called upon

38. Information pertaining to prior findings of disciplinary and residence hall violations might be reported, as well as relevant criminal convictions Prior allegations of misconduct should not be disclosed

39. A disciplinary hearing at the University is not analogous to a criminal trial The presiding officer and the board advisor are authorized to exercise active control over the proceedings in order to elicit relevant facts and to prevent the harassment or intimidation of witnesses. No party or representative may use threatening or abusive language, engage in excessive argumentation, interrupt the proceedings with redundant or frivolous objections, or otherwise disrupt the hearing

Students have not been determined to have a constitutional right to full legal representation in University disciplinary hearings The privilege of legal representation, granted in this part, should be carefully reviewed in any subsequent revision of the code

40. Punishment of one or several individuals for the acts of others should be avoided if the identities of the specific offenders can be readily ascertained

41. Association does not require formal membership Individuals who might reasonably be regarded as regular participants in group or organization activities may be held to be associated with the group or organization

42. Leaders or spokesmen need not be officially designated or elected For example, if a group or organization accepted or acquiesced in the act or statement of an individual associated with it, that individual might reasonably be regarded as a leader or a spokesman for the group or organization

43. "Suspension" includes deferred suspension but not interim suspension or suspension that is withheld See annotation six

44. Students left with a disciplinary record after a disciplinary conference may request that their record be voided in accordance with part 47 Denials may be appealed pursuant to part 48

45. The decision will be "final and conclusive" on the part of the judicial board, but will remain a recommendation to the Director of Judicial Programs.

46. This part is intended to discourage frivolous appeals. Respondents who are genuinely interested in pursuing an appeal can reasonably be expected to prepare a written brief.

47. Appellate bodies that do not give deference (i.e., a presumption of validity) to lower board decisions will distort the entire disciplinary system. Respondents would be encouraged to "test their strategy" and "perfect their technique" before lower boards, since the matter would simply be heard again before a "real" board with final authority.

    Lower board members usually have the best access to the evidence, including an opportunity to observe the witnesses and to judge their demeanor. Members of appellate bodies should be especially careful not to modify a sanction or to remand or dismiss a case simply because they may personally disagree with the lower board's decision.

    The opportunity to appeal adverse decisions has not been determined to be a requirement of constitutional "due process" in student disciplinary cases.*** There is presently no legal obstacle to adopting an amendment to the code which would eliminate the appellate system altogether.

48. Respondents who obtain information at the hearing that might lead to new evidence are required to request an adjournment rather than wait to raise the matter for the first time on appeal.

49. An arbitrary and capricious decision would be a decision "unsupported by any evidence." The cited language has been adopted by the Federal Courts as the proper standard of judicial review, under the due process clause, of disciplinary determinations made by State boards or agencies. See *McDonald v. Board of Trustees of the University of Illinois* 375 F. Supp. 95, 108 (N.D. Ill., 1974).

50. See annotation 19.

51. Voided files will be so marked, shall not be kept with active disciplinary records, and shall not leave any student with a disciplinary record.

52. Disciplinary records may be reported to third parties, in accordance with University regulations and applicable State and Federal law.

53. Void records shall be treated in the manner set forth in annotation 51.

54. The scope of review shall be limited to the factors specified at part 47. An inquiry into the initial determination of guilt or innocence is not permitted. For example, when considering the "nature" of the violation, pursuant to part 47 (c), it is to be assumed that the violation occurred and that the respondent was responsible for it.

55. Some discretion must be retained to void even "permanent" disciplinary records. It may be unnecessary, for example, to burden a graduating senior with a lifelong stigma for an act committed as a freshman. Social norms also change rapidly. "Unacceptable" conduct in one generation may become permissable and commonplace in the next.

** See the procedures for mandatory medical withdrawal developed by the Vice Chancellor for Student Affairs.*

*** See Macklin Fleming, The Price of Perfect Justice: In our pursuit of perfectibility, we necessarily neglect other elements of an effective procedure, notably the resolution of controversies within a reasonable time at a reasonable cost, with reasonable uniformity we impair the capacity of the legal order to achieve the basic values for which it was created, that is, to settle disputes promptly and peaceably, to restrain the strong, to protect the weak, and to conform the conduct of all to settled rules of law.*

**** See the due process standard set forth in Dixon v. Alabama 294 F.2d 150, 158–159 (Fifth Cir., 1961), Cert. den. 368 U.S. 930.*

Appendix D: University Policy on Disclosure of Student Records

Buckley Amendment

The University of Maryland adheres to a policy of compliance with the Family Educational Rights and Privacy Act (Buckley Amendment). As such, it is the policy of the University (1) to permit students to inspect their education records, (2) to limit disclosure to others of personally identifiable information from education records without students' prior written consent, and (3) to provide students the opportunity to seek correction of their education records where appropriate.

I. Definitions

A. "Student" means an individual who is or who has been in attendance at The University of Maryland. It does not include any applicant for admission to the University who does not matriculate, even if he or she previously attended the University. (Please note, however, that such an applicant would be considered a "student" with respect to his or her records relating to that previous attendance.)

B. "Education records" include those records that contain information directly related to a student and that are maintained as official working files by the University. The following are not education records:
   (1) records about students made by professors and administrators for their own use and not shown to others;
   (2) campus police records maintained solely for law enforcement purposes and kept separate from the education records described above and not shown to others;
   (3) employment records, except where a currently enrolled student is employed as a result of his or her status as a student;
   (4) records of a physician, psychologist, or other recognized professional or paraprofessional made or used only for treatment purposes and available only to persons providing treatment. However, these records may be reviewed by an appropriate professional of the student's choice;
   (5) records that contain only information relating to a person's activities after that person is no longer a student at the University.

II. It is the policy of The University of Maryland to permit students to inspect their education records.

A. Right of Access

Each student has a right of access to his or her education records, except confidential letters of recommendation received prior to January 1, 1975, and financial records of the student's parents.

B. Waiver

A student may, by a signed writing, waive his or her right of access to confidential recommendations in three areas: admission to any educational institution, job placement, and receipt of honors and awards. The University will not require such waivers as a condition for admission or receipt of any service or benefit normally provided to students. If the student chooses to waive his or her right of access, he or she will be notified, upon written request, of the names of all persons making confidential recommendations. Such recommendations will be used only for the purpose for which they were specifically intended. A waiver may be revoked in writing at any time, and the revocation will apply to all subsequent recommendations, but not to recommendations received while the waiver was in effect.

C. Types and Locations of Education Records, Titles of Records Custodians

Please note that all requests for access to records should be routed through the Registrations Office (see II.D. below).

(1) Admissions
Applications and transcripts from institutions previously attended.
a. Undergraduate—Director of Undergraduate Admissions, North Administration
b. Graduate—Director of Graduate Records, South Administration

(2) Registrations
All ongoing academic and biographical records. Graduate and Undergraduate—Director of Registrations, North Administration.

(3) Departments
Departmental offices, Chairs (Check first with the Director of Registrations). (Miscellaneous records kept vary with the department.)

(4) Deans
Deans' offices of each school. Miscellaneous records.

(5) Resident Life
North Administration, Director of Resident Life. Students' housing records.

(6) Advisors
Pre-Law Advisor: Hornbake Library
Pre-Dental Advisor: Turner Laboratory
Pre-Medical Advisor: Turner Laboratory
Letters of evaluation, personal information sheet, transcript, test scores (if student permits).

(7) Judicial Affairs
North Administration Building, Director of Judicial Affairs. Students' judicial and disciplinary records.

(8) Counseling Center
Shoemaker Hall, Director. Biographical data, summaries of conversations with students, test results. (Where records are made and used only for treatment purposes, they are not education records and are not subject to this policy.)

(9) Financial Aid
Undergraduate—North Administration, Director of Financial Aid. Graduate and Professional Schools—Located in deans

offices. Financial aid applications, needs analysis statements, awards made (no student access to parents' confidential statements).

(10) Career Development Center
Undergraduate Library, Director. Recommendations, copies of academic records (unofficial) (Note WAIVER section.)

(11) Business Services
South Administration Building, Director. All student accounts receivable, records of students' financial charges, and credits with the University

D. Procedure to be Followed
Requests for access should be made in writing to the Office of Registrations. The University will comply with a request for access within a reasonable time, at least within 45 days. In the usual case, arrangements will be made for the student to read his or her records in the presence of a staff member. If facilities permit, a student may ordinarily obtain copies of his or her records by paying reproduction costs. The fee for copies is $.25 per page. No campus will provide copies of any transcripts in the student's records other than the student's current University transcript from that campus. Official University transcripts (with University seal) will be provided at a higher charge.

III. It is the policy of The University of Maryland to limit disclosure of personally identifiable information from education records unless it has the student's prior written consent, subject to the following limitations and exclusions.

A. Directory Information

(1) The following categories of information have been designated directory information:
- Name
- Address
- Telephone listing
- Date and place of birth
- Photograph
- Major field of study
- Participation in officially recognized activities and sports
- Weight and height of members of athletic teams
- Dates of attendance
- Degrees and awards received
- Most recent previous educational institution attended

(2) This information will be disclosed even in the absence of consent unless the student files written notice requesting the University not to disclose any or all of the categories within three weeks of the first day of the semester in which the student begins each school year. This notice must be filed annually within the above alloted time to avoid automatic disclosure of directory information. The notice should be filed with the campus Registrations Office. See II.C.

(3) The University will give annual public notice to students of the categories of information designated as directory information.

(4) Directory information may appear in public documents and otherwise be disclosed without student consent unless the student objects as provided above.

(5) All requests for non-disclosure of directory information will be implemented as soon as publication schedules will reasonably allow.

(6) The University will use its best efforts to maintain the confidentiality of those categories of directory information that a student properly requests not be publically disclosed. The University however, makes no representations, warranties, or guarantees that directory information designated for non-disclosure will not appear in public documents.

B. Prior Consent not Required
Prior consent will not be required for disclosure of education records to the following parties:

(1) School officials of The University of Maryland who have been determined to have legitimate educational interests.
(a) "School officials" include instructional or administrative personnel who are or may be in a position to use the information in furtherance of a legitimate objective;
(b) "Legitimate educational interests" include those interests directly related to the academic environment.

(2) Officials of other schools in which a student seeks or intends to enroll or is enrolled. Upon request, and at his or her expense, the student will be provided with a copy of the records that have been transferred;

(3) Authorized representatives of the Comptroller General of the U.S., the Secretary of Education, the Secretary of the Department of Health and Human Services, the Director of the National Institute of Education, the Administrator of the Veterans' Administration, but only in connection with the audit or evaluation of federally supported education programs or in connection with the enforcement of or compliance with Federal legal requirements relating to these programs. Subject to controlling Federal law or prior consent, these officials will protect information received so as not to permit personal identification of students to outsiders and destroy such information when it is no longer needed for these purposes;

(4) Authorized persons and organizations that are given work in connection with a student's application for, or receipt of, financial aid, but only to the extent necessary for such purposes as determining eligibility, amount, conditions, and enforcement of terms and conditions;

(5) State and local officials to which such information is specifically required to be reported by effective state law adopted prior to November 19, 1974;

(6) Organizations conducting educational studies for the purpose of developing, validating, or administering predictive tests, administering student aid programs, and improving instruction. The studies shall be conducted so as not to permit personal identification of students to outsiders, and the information will be destroyed when no longer needed for these purposes;

(7) Accrediting organizations for purposes necessary to carry out their functions;

(8) Parents of a student who is a dependent for income tax purposes. (Note: The University may require documentation of dependent status such as copies of income tax forms.)

(9) Appropriate parties in connection with an emergency, where knowledge of the information is necessary to protect the health or safety of the student or other individuals.

(10) In response to a court order or subpoena, the University will make reasonable efforts to notify the student before complying with the court order.

C. Prior Consent Required
In all other cases, the University will not release personally identifiable information in education records or allow access to those records without prior consent of the student. Unless disclosure is to the student himself or herself, the consent must be written, signed, and dated, and must specify the records to be disclosed, the identity of the recipient, and the purpose of disclosure. A copy of the record disclosed will be provided to the student upon request and at his or her expense.

D. Record of Disclosures
The University will maintain with the student's education records a record for each request and each disclosure, except for the following:

(1) disclosures to the student himself or herself;

(2) disclosures pursuant to the written consent of the student (the written consent itself will suffice as a record);

(3) disclosures to instructional or administrative officials of the University;

(4) disclosures of directory information.
This record of disclosures may be inspected by the student, the official custodian of the records, and other University and governmental officials.

IV. It is the policy of The University of Maryland to provide students the opportunity to seek correction of their education records.

A. Request to Correct Records
A student who believes that information contained in his or her education records is inaccurate, misleading, or violative of privacy or other rights may submit a written request to the Office of Registrations specifying the document(s) being challenged and the basis for the complaint. The request will be sent to the person responsible for any amendments to the record in question. Within a reasonable period of time of receipt of the request, the University will decide whether to amend the records in accordance with the request. If the decision is to refuse to amend, the student will be so notified and will be advised of the right to a hearing. He or she may then exercise that right by written request to the Office of the Chancellor.

B. Right to a Hearing
Upon request by a student, the University will provide an opportunity for a hearing to challenge the content of the student's records. A request for a hearing should be in writing and submitted to the Office of Registrations. Within a reasonable time of receipt of the request, the student will be notified in writing of the date, place, and time reasonably in advance of the hearing.

(1) Conduct of the Hearing
The hearing will be conducted by a University official who does not have a direct interest in the outcome. The student will have a full and fair opportunity to present evidence relevant to the issues raised and may be assisted or represented by individuals of his or her choice at his or her own expense, including an attorney.

(2) Decision
Within a reasonable period of time after the conclusion of the hearing, the University will notify the student in writing of its decision. The decision will be based solely upon evidence presented at the hearing and will include a summary of the evidence and the reasons for the decision. If the University

decides that the information is inaccurate, misleading, or otherwise in violation of the privacy or other rights of the student, the University will amend the records accordingly

C. Right to Place an Explanation in the Records

If, as a result of the hearing, the University decides that the information is not inaccurate, misleading, or otherwise in violation of the student's rights, the University will inform the student of the right to place in his or her record a statement commenting on the information and/or explaining any reasons for disagreeing with the University's decision. Any such explanation will be kept as part of the student's record as long as the contested portion of the record is kept and will be disclosed whenever the contested portion of the record is disclosed

V. Right to File Complaint

A student alleging University noncompliance with the Family Educational Rights and Privacy Act may file a written complaint with the Family Educational Rights and Privacy Act Office (FERPA), Department of Education, Switzer Building, 400 Maryland Avenue, S.W., Room 4074, Washington, D.C. 20202.

Appendix E: Smoking Policy and Guidelines

Effective Spring Semester 1986

Policy

It is hereby established as the policy of the College Park Campus to achieve a public environment as close to smoke-free as practicably possible. Obtaining and maintaining this result will require the willingness, understanding, and patience of all members of the campus community working together.

Guidelines

The following guidelines shall serve to implement the Campus Smoking Policy:

A. *Smoking is prohibited in indoor locations where smokers and non-smokers occupy the same area.* Such areas include:
   1. Academic areas: classrooms, lecture halls, seminar rooms, laboratories, libraries, computing facilities.
   2. Conference rooms, auditoria, exhibition areas, indoor athletic facilities, theaters, pavilions, and retail stores.
   3. Health facilities.
   4. Common/public areas (shared spaces not fully enclosed by floor-to-ceiling partitions and doors) including: stairwells, elevators, escalators, lobbies, hallways, waiting rooms, reception areas, restrooms, and customer service areas.
   5. Any area in which a fire or safety hazard exists.

B. *Unit heads, or their designees, may establish the following locations as "Smoking Permitted Areas":*
   1. Up to one-third of dining, large lounge, and other large open spaces, as long as ventilation is adequate. Smoking of cigars and pipes, however, is prohibited.
   2. Rooms that have closed doors and floor-to-ceiling partitions as long as ventilation is adequate and non-smokers in adjacent areas are not exposed to second hand or side-stream smoke.
   3. The Director of the Stamp Student Union may, at his/her discretion, allow groups and organizations with permanent offices in the Union to determine the smoking policy in those offices. Such individual policies must adhere to the restrictions set forth in Section III, B, 2 of this policy.

      The Director of the Stamp Student Union may, at his/her discretion, allow cigarette smoking by groups making use of the Grand Ballroom, the Colony Ballroom, the Atrium, and other rooms in the Union if he/she determines that it is appropriate to the nature of the event scheduled.

C. *As a general rule, preferential consideration shall be given to non-smokers whenever it is clear that they are being exposed involuntarily to smoke.*

Appendix F: Academic Integrity

The academic regulations and requirements of The University of Maryland College Park are designed to provide and enhance a maximum educational environment for the entire campus academic community. The success of the design depends upon the mutual respect, courteous treatment, and consideration of everyone involved. The following statements contain procedures and expectations for both faculty and students. For questions about the interpretation of these statements, students should contact their academic advisor, department chair, or dean.

Resolution on Academic Integrity

Approved by Board of Regents: May 8, 1981

WHEREAS, it is the responsibility of The University of Maryland to maintain integrity in teaching and learning as a fundamental principle on which a university is built, and

WHEREAS, all members of the University community share in the responsibility for academic integrity, therefore

BE IT RESOLVED, that The University of Maryland Board of Regents hereby adopts the following Statement of Faculty, Student and Institutional Rights and Responsibilities for Academic Integrity.

Statement of Faculty, Student and Institutional Rights and Responsibilities for Academic Integrity

Preamble

At the heart of the academic enterprise are learning, teaching, and scholarship. In universities these are exemplified by reasoned discussion between student and teacher, a mutual respect for the learning and teaching process, and intellectual honesty in the pursuit of new knowledge. In the traditions of the academic enterprise, students and teachers have certain rights and responsibilities which they bring to the academic community. While the following statements do not imply a contract between the teacher or the University and the student, they are nevertheless conventions which the University believes to be central to the learning and teaching process.

Faculty Rights and Responsibilities

1. Faculty shall share with students and administration the responsibility for academic integrity.
2. Faculty are accorded freedom in the classroom to discuss subject matter reasonably related to the course. In turn they have the responsibility to encourage free and honest inquiry and expression on the part of students.
3. Faculty are responsible for the structure and content of their courses, but they have the responsibility to present courses that are consistent with their descriptions in the University catalog. In addition, faculty have the obligation to make students aware of the expectations in the course, the evaluation procedures, and the grading policy.
4. Faculty are obligated to evaluate students fairly and equitably in a manner appropriate to the course and its objectives. Grades shall be assigned without prejudice or bias.
5. Faculty shall make all reasonable efforts to prevent the occurrence of academic dishonesty through the appropriate design and administration of assignments and examinations, through the careful safeguarding of course materials and examinations, and through regular reassessment of evaluation procedures.
6. When instances of academic dishonesty are suspected, faculty shall have the right and responsibility to see that appropriate action is taken in accordance with University regulations.

Student Rights and Responsibilities

1. Students shall share with faculty and administration the responsibility for academic integrity.
2. Students shall have the right of inquiry and expression in their courses without prejudice or bias. In addition, students shall have the right to know the requirements of their courses and to know the manner in which they will be evaluated and graded.
3. Students shall have the obligation to complete the requirements of their courses in the time and manner prescribed and to submit to evaluation of their work.
4. Students shall have the right to be evaluated fairly and equitably in a manner appropriate to the course and its objectives.
5. Students shall not submit as their own work any work which has been prepared by others. Outside assistance in the preparation of this work, such as librarian assistance, tutorial assistance, typing assistance, or such assistance as may be specified or approved by the instructor is allowed.
6. Students shall make all reasonable efforts to prevent the occurrence of academic dishonesty. They shall by their own example encourage academic integrity and shall themselves refrain from acts of cheating and plagiarism or other acts of academic dishonesty.

7. When instances of academic dishonesty are suspected students shall have the right and responsibility to bring this to the attention of the faculty or other appropriate authority

Institutional Responsibility

1 Campuses or appropriate administrative units of The University of Maryland shall take appropriate measures to foster academic integrity in the classroom
2 Campuses or appropriate administrative units shall take steps to define acts of academic dishonesty, to insure procedures for due process for students accused or suspected of acts of academic dishonesty, and to impose appropriate sanctions on students guilty of acts of academic dishonesty
3 Campuses or appropriate administrative units shall take steps to determine how admission or matriculation shall be affected by acts of academic dishonesty on another campus or at another institution. No student suspended for disciplinary reasons at any campus of The University of Maryland shall be admitted to any other University of Maryland campus during the period of suspension.

AND, BE IT FURTHER RESOLVED, that campuses or appropriate administrative units of the University of Maryland will publish the above Statement of Faculty, Student and Institutional Rights and Responsibilities for Academic Integrity in faculty handbooks and in student handbooks and catalogs; and

BE IT FURTHER RESOLVED, that the Board of Regents hereby directs each campus or appropriate administrative unit to review existing procedures or to implement new procedures for carrying out the institutional responsibilities for academic integrity cited in the above Statement, and

BE IT FINALLY RESOLVED, that the Board of Regents hereby directs each campus or appropriate administrative unit to submit to the President or his designee for approval the campus' or unit's procedure for implementation of the institutional responsibility provisions of the above Statement.

Appendix G: Undergraduate Student Grievance Procedure*

**The Undergraduate Student Grievance Procedure is currently being revised by the Campus Senate to reflect the recent reorganization of the academic units at College Park. The following interim procedure is to be in effect until such time as the procedure is revised by the Campus Senate. For the nondepartmentalized colleges, the dean for Undergraduate Studies shall assume the responsibilities formerly held by the division provost. For the departmentalized colleges, the dean of the College shall assume the responsibilities formerly held by the division provost.*

Approved by Board of Regents: April 14, 1981

I. Purpose

The following procedure provides a means for an undergraduate student to present a complaint resulting from a believed violation of the "Expectations of Faculty and Academic Units," set forth in Section II, below, to have that complaint examined as a matter of regular procedure, and to receive a final determination thereon. This procedure offers a vehicle for seeking redress with respect to acts or omissions of individual faculty members, or of an academic department,program/or college. Redress may be sought under this procedure without fear of reprisal or discrimination.

II. Scope of Grievances: Expectations of Faculty and Academic Units

The academic regulations and requirements of the College Park campus are designed to provide and enhance a maximum educational environment for the entire campus academic community. The success of the design depends upon the mutual respect, courteous treatment, and consideration of everyone involved

A The following are considered to be reasonable student expectations of faculty
   1 A written description at the beginning of each undergraduate course specifying in general terms the content, nature of assignments, examination procedures, and the bases for determining final grades. In cases where all or some of this information cannot be provided at the beginning of the course, a clear explanation of the delay and the bases of course development shall be provided
   2 Reasonable notice of major papers and examinations in the course,
   3 A reasonable number of recitations, performances, quizzes, tests, graded assignments and or student instructor conferences to permit evaluation of student progress throughout the course
   4 Unless prohibited by statute or contract, a reasonable opportunity to review papers and examinations after evaluation by the instructor, while the materials remain reasonably current
   5 A reasoned approach to the subject which attempts to make the student aware of the existence of different points of view
   6 Reasonable access to the instructor during announced regular office hours or by appointment,
   7 Regular attendance by assigned faculty and reasonable adherence to published campus schedules and location of classes and examinations. Classes not specified in the schedules are to be arranged at a mutually agreeable time on campus, unless an off-campus meeting is clearly justified
   8 Reasonable confidentiality of information gained through student-faculty contact
   9 Public acknowledgement of significant student assistance in the preparation of materials, articles, books, devices and the like
   10. Assignment of materials to which all students can reasonably be expected to have access
B The academic units (programs, departments, colleges, schools) in cooperation with the Office of the Dean for Undergraduate Studies and the Office of Records and Registrations shall, whenever possible, provide the following
   1 Accurate information on academic requirements through designated advisors and referral to other parties for additional guidance
   2 Specific policies and procedures for the award of academic honors and awards, and the impartial application thereof
   3 Equitable course registration in accordance with University policy and guidelines
C The scope of the matters which may constitute a grievance cognizable under this Undergraduate Student Grievance Procedure is limited to believed violations of the expectations of faculty and academic units set forth above in paragraphs A and B of this section

III. Human Relations Code/Alternative Grievance Procedures

A Human Relations Code, with an implementing Office of Human Relations Programs, presently exists for the campus. The Undergraduate Student Grievance Procedure and the Human Relations Code may not be used simultaneously or consecutively with one another with respect to the same (or substantially the same) issue complaint or with respect to issues/complaints arising out of or pertaining to the same set of facts. The procedures of the Human Relations Code and/or of any other University grievance/review process may not be utilized to challenge the procedures, actions, determinations or recommendations of any person(s) or board(s) acting pursuant to the authority and/or requirements of the Undergraduate Student Grievance Procedure

IV. General Limitations

Notwithstanding any provision of this Undergraduate Student Gnevance Procedure to the contrary, the following matters do not constitute the basis for a grievance and are not susceptible of challenge thereby

A Policies, regulations, decisions, resolutions, directives and other acts of the Board of Regents of The University of Maryland, of the Office of the President of The University of Maryland, and of the Chancellor of The University of Maryland College Park
B Any statute or any regulation, directive or order of any department or agency of the United States or the State of Maryland, and any other matter outside of the control of The University of Maryland
C Course offerings
D The staffing and structure of any academic department or program
E The fiscal management of The University of Maryland, and the allocation of University resources
F Any issue(s)/act(s) which does not affect the complaining party personally and directly
G Matters of academic judgment relating to an evaluation of a student's academic performance and/or of his/her academic qualifications, except that the following matters of a procedural nature may be reviewed under this Undergraduate Student Grievance Procedure if filed as a formal grievance within thirty (30) days of the first meeting of the course to which they pertain
   1 Whether reasonable notice has been given as to the relative value of all work considered in determining the final grade and/or assessment of performance in the course—e.g., the relative value of examinations, papers, laboratories and other academic exercises and requirements. The remedy with respect to a grievance based upon this subsection shall be the giving of notice by the faculty member
   2 Whether a reasonably sufficient number of examinations, papers, laboratories and/or other academic exercises and requirements have been scheduled to present the student with a reasonable opportunity to demonstrate his/her academic merit. The remedy with respect to a grievance based upon this subsection shall be the scheduling of such additional academic exercises as the

faculty member, in consultation with the Dean and upon consideration of the written opinion of the College hearing board, shall deem appropriate

Notwithstanding any language in this paragraph or elsewhere in this Undergraduate Student Grievance Procedure, nothing herein shall be construed to permit a challenge, either directly or indirectly, to the award of a specific grade

No recommendation or decision may be made pursuant to the Undergraduate Student Grievance Procedure which conflicts with or modifies, directly or indirectly, any policy, statute, regulation or other matter set forth in paragraphs A and B of this section

"Class" grievances and concomitant remedies are not cognizable; however, a screening or hearing board may, in its discretion, consolidate grievances presenting similar facts and issues, and recommend such generally applicable relief as it deems warranted

V. *Finality*

A student who elects to utilize the Undergraduate Student Grievance Procedure agrees that in doing so he/she shall abide by the final disposition arrived at thereunder, and shall not subject this disposition to review under any other procedure within the University. For the purpose of this limitation, a student shall be deemed to have elected to utilize the Undergraduate Student Grievance Procedure when he/she files a written grievance as set forth in section VI.A.2. and VI.B. below

VI. *Procedure*

A. **Grievance Against Faculty Member, Academic Department, Program or College**

1. *Resolution of grievance by informal means.*
The initial effort in all cases shall be to achieve a resolution of the grievance through the following informal means:
   a. In the case of a grievance against an individual faculty member, the student should first contact the member, present the grievance in its entirety, and attempt a complete resolution; if any portion of the grievance thereafter remains unresolved, the student may present such part to the immediate administrative supervisor of the faculty member concerned. A grievance may be initially presented directly to the administrative supervisor of the faculty member if he or she is not reasonably available to discuss the matter. The supervisor shall attempt to mediate the dispute; should a resolution mutually satisfactory to both the student and the faculty member be achieved, the case shall be closed.
   b. In the case of a grievance against an academic department, program, school or college, the student should contact the department head, director or dean thereof, present the grievance in its entirety, and attempt a complete resolution.

2. *Resolution of grievance by formal means.*
Should a student be dissatisfied with the disposition of his/her grievance following the attempt to resolve it informally according to the steps set forth in subparagraph A.1. above, he/she may obtain a formal resolution thereof pursuant to the following procedure:
   a. The student shall file with the Screening Board for Academic Grievances of the college (hereinafter "college screening board") from which the matter arises, a written grievance. The written grievance must set forth in detail:
      (i) the act, omission or matter complained of;
      (ii) all facts which the student believes to be relevant to the grievance;
      (iii) the resolution sought;
      (iv) all arguments upon which the student relies in seeking such resolution.
   b. In order to be considered, a grievance must be filed in a timely manner. To be filed in a timely manner, the written grievance (as set forth in subparagraph 2.a. above) must be received by the appropriate college screening board within thirty (30) days of the act, omission or matter which constitutes the basis of the grievance, or within thirty (30) days of the date the student is first placed upon reasonable notice thereof, whichever is later. It is the responsibility of the student to insure timely filing.
   c. The college screening board shall immediately notify the faculty member against whom a grievance has been timely filed, or the head of the academic unit against which a grievance has been filed, and forward to them a copy of the grievance together with all other relevant material and information known to it. The faculty member or head of the academic unit shall within ten (10) days after receipt thereof, make a complete written response to the college screening board; in the event the faculty member receives the written grievance and other relevant materials and information from the college screening board after the last day of classes of the semester in which the grievance is filed, then the time for making a written response is extended to and includes ten (10) days after the first day of classes of the next succeeding semester in which the faculty member is teaching/working on campus (however, this extension shall not be available to a faculty member whose appointment terminates on or before the last day of the semester in which the grievance is filed). A copy of said response shall be sent by the college screening board to the student. In its discretion, the college screening board may request further written submissions from the student, the faculty member and/or the head of the academic unit.
   d. The college screening board shall review the case to determine if a formal hearing is warranted.
      (i) The college screening board shall dismiss all or part of a grievance which it concludes:
         (a) is untimely;
         (b) is based upon a nongrievable matter;
         (c) is being pursued concurrently in another review/grievance procedure within the University and/or in a court of law or equity;
         (d) has been previously decided pursuant to this or any other review/grievance procedure within the University and/or by a court of law or equity;
         (e) is frivolous;
         (f) is intended to harass, embarrass and/or has otherwise been filed in bad faith;
      (ii) The college screening board in its discretion may dismiss all or part of a grievance which it concludes:
         (a) is unsufficiently supported;
         (b) is premature;
         (c) is otherwise inappropriate or unnecessary to present to the college hearing board.
   e. The college screening board shall meet and review grievances in private. A decision to dismiss a grievance shall require the majority vote of at least three members. If a grievance is dismissed either in whole or in part, the student shall be so informed and given a concise statement as to the basis for such action; however, the decision of the college screening board to dismiss a grievance is final and is not subject to appeal.
   f. If the college screening board determines that a grievance is appropriately one for a hearing, it will so inform the dean. The dean shall thereafter within fifteen (15) days convene a college hearing board to hear the grievance, except that for good cause in the discretion of the dean, such time may be extended.
   g. The following rules apply to the conduct of a hearing by the college hearing board:
      (i) Reasonable notice of the time and place of the hearing shall be given to the student and the faculty member or head of an academic unit. Notice shall include a brief statement of the violation(s) alleged and the remedy sought by the student.
      (ii) A record of the hearing, including all exhibits, shall be kept.
      (iii) The hearing shall be closed to the public unless a public hearing is specifically requested by both parties.
      (iv) Each party shall have an opportunity to make an opening statement, present evidence, present witnesses, cross-examine witnesses, offer personal testimony, and such other material as is relevant to the grievance. It is the responsibility of each party to insure that those witnesses whom he/she wishes to present are available, as well as to have his/her case completely prepared at the time of the hearing.
      (v) The student shall first present his/her case, the faculty member or head of the academic unit shall then present his/her response.
      (vi) Upon the completion of the presentation of all evidence, each party shall have an opportunity to present oral arguments and a closing statement. The chair of the college hearing board may in his discretion set time limits upon such arguments and statements.
      (vii) Upon the request of either party, all persons to be called as witnesses shall be sequestered.
      (viii) Incompetent, irrelevant, immaterial and unduly repetitious evidence may be excluded in the discretion of the chair of the college hearing board.
      (ix) Each party may be assisted in the presentation of his/her case by a student or faculty member of his/her choice.
      (x) It is the responsibility of the chair of the college hearing board to manage the hearing and to decide all questions relating to the presentation of evidence and appropriate procedure, and is the final authority on all such matters, except as are specifically established herein.
      (xi) All documents and materials filed with the college screening board by the student and the faculty member or the head of

an academic unit, shall be forwarded to the college hearing board for its consideration, and shall become part of the record of the hearing.

(xii) The college hearing board shall have the right to examine any person or party testifying before it, and on its own motion, to request the presence of any person for the purpose of testifying and the production of any evidence the chair believes to be relevant.

(xiii) The above-enumerated procedures and powers of the college hearing board are non-exclusive; the chair of the college hearing board may take such action as is necessary in his/her determination to facilitate the orderly and fair conduct of the hearing and as is not inconsistent with the procedures set forth herein.

h. Upon completion of the hearing, the college hearing board shall meet privately to consider the validity of the grievance. The burden of proof rests upon the student to establish a violation of the expectations of faculty and academic units, set forth in Section II, above, and any concomitant right to relief. It must be shown by a preponderance of the evidence that a substantial departure from the expectations has occurred, and that such substantial departure has operated to the actual prejudice and injury of the student. A decision by the college hearing board upholding the grievance, either in whole or part, shall require the majority vote of at least three members. The decision of the college hearing board shall address only the validity of the grievance, and shall be forwarded to the dean in a written opinion.

i. In the event the college hearing board decided in part or in whole on behalf of the student, it may submit an informal recommendation to the dean with respect to such relief as it may believe is warranted by the facts as proven in the hearing.

j. The dean shall immediately, upon receipt of the written opinion, forward copies to the student and the faculty member or head of the academic unit. Each party has ten (10) days from the date of receipt to file with the dean an appeal of the decision of the college hearing board. The sole grounds for appeal shall be:

(i) a substantial prejudicial procedural error committed in the conduct of the hearing in violation of the procedures established herein. Discretionary decisions of the chair of the college hearing board shall not constitute the basis of an appeal;

(ii) the existence of new and relevant evidence of a significant nature which was not reasonably available, at the time of the hearing. The appeal shall be in writing and set forth in complete detail the grounds relied upon. A copy of the appeal shall also be sent to the opposite party, who shall have ten (10) days following receipt to file a written response with the dean.

k. In the absence of a timely appeal, or following receipt and consideration of all timely appeals and responses, the dean in his/her discretion may:

(i) dismiss the grievance;

(ii) grant such redress as he/she believes is appropriate, except that no affirmative relief shall be made to a student unless the student executes the following release:

"The complainant hereby waives, releases and covenants not to sue The University of Maryland or its officers, agents or employees with respect to any matters which were or might have been alleged as a grievance filed under the Undergraduate Student Grievance Procedure in the instant case, subject to performance by The University of Maryland, its officers, agents and employees, of the promises contained in a final decision under this Procedure."

(iii) reconvene the college hearing board to rehear the grievance in part or whole and/or to receive new evidence;

(iv) convene a new college hearing board to rehear the case in its entirety.

l. The dean shall inform all parties of his/her decision in writing and the grievance shall thereafter be concluded. The decision of the provost shall be final and binding, and not subject to appeal or review.

m. For the nondepartmentalized colleges, the dean for Undergraduate Studies shall assume the duties performed by the deans of the departmentalized colleges.

B. **Grievance Against Administrative Dean for Undergraduate Studies, College Dean**

1 *Resolution of grievance by informal means.*
The initial effort in all cases shall be to achieve a resolution of the grievance through informal means. The student should first contact the administrative dean, present the grievance in its entirety, and attempt a complete resolution, if any portion of the grievance thereafter remains unresolved, the student may present such part to the Vice Chancellor for Academic Affairs. A Grievance may be initially presented directly to the Vice Chancellor if the administrative dean is not reasonably available to discuss the matter. The Vice Chancellor shall attempt to mediate the dispute; should a resolution mutually satisfactory to both the student and the administrative dean/college dean be achieved, the case shall be closed.

2 *Resolution of grievance by formal means.*
Should a student be dissatisfied with the disposition of his/her grievance following the attempt to resolve it informally according to the steps set forth in subparagraph B 1. above, he/she may obtain a formal resolution thereof pursuant to the following procedure:

a. The student shall file with the Chancellor a written grievance. The written grievance must set forth in detail:

(i) the act, omission or matter complained of;

(ii) all facts which the student believes to be relevant to the grievance;

(iii) the resolution sought;

(iv) all arguments upon which the student relies in seeking such resolution.

b. In order to be considered, a grievance must be filed in a timely manner. To be filed in a timely manner, the written grievance (as set forth in 2 a. above) must be received by the Chancellor within thirty (30) days of the act, omission or matter which constitutes the basis of the grievance, or within thirty (30) days of the date the student is first placed upon reasonable notice thereof, whichever is later. It is the responsibility of the student to insure timely filing.

c. The Chancellor shall forward the grievance to the college screening board of a college other than that from which the grievance has arisen.

d. The college screening board shall immediately notify the administrative dean against whom a grievance has been timely filed, and forward him/her a copy of the grievance with all other relevant material and information known to it. The administrative dean shall within ten (10) days after receipt thereof, make a complete written response to the college screening board, in the event the administrative dean receives the written grievance and other relevant materials and information from the college screening board after the last day of classes of the semester in which the grievance is filed, then the time for making a written response is extended to and includes ten (10) days after the first day of classes of the next succeeding semester. A copy of said response shall be sent by the college screening board to the student. In its discretion, the college screening board may request further written submissions from the student and/or the administrative dean.

e. The college screening board shall thereafter review and act on the grievance in the same manner and according to the requirements set forth in subparagraphs A 2 d. through A 2 e. of this section, for the review of grievances against faculty members, academic departments, programs and colleges.

f. If the college screening board determines that a grievance is appropriately one for a hearing, it will so inform the Chancellor. The Chancellor shall thereafter within fifteen (15) days, convene a campus hearing board to hear the grievance; except that for good cause in the discretion of the Chancellor, such time may be extended.

g. The campus hearing board shall conduct hearings in accordance with the rules established in subparagraph A 2 g. above, for the conduct of hearings by a college hearing board. Upon completion of a hearing, the campus hearing board shall meet privately to consider the grievance in the same manner and according to the same rules as set forth in subparagraph A 2 h. for the consideration of grievances by a college hearing board, except that the board's decision shall be forwarded to the Chancellor.

h. In the event the campus hearing board decides in part or in whole on behalf of the student, it may submit an informal recommendation to the Chancellor with respect to such relief as it may believe is warranted by the facts as proven in the hearing.

i. The Chancellor shall immediately, upon receipt of the written opinion, forward copies to the student and the administrative dean. Each party has ten (10) days from the date of receipt to file with the Chancellor an appeal of the decision of the campus hearing board. The sole grounds for appeal shall be:

(i) a substantial prejudicial procedural error committed in the conduct of the hearing in violation of the procedures established herein. Discretionary decisions of the chair of the campus hearing board shall not constitute the basis of an appeal;

(ii) the existence of new and relevant evidence of a significant nature which was not reasonably available at the time of the hearing.

The appeal shall be in writing and set forth in complete detail the grounds relied upon. A copy of the appeal shall also be sent to the opposite party, who shall have ten (10) days following receipt to file a written response with the Chancellor.

j In the absence of a timely appeal, or following receipt and consideration of all timely appeals and responses, the Chancellor in his discretion may:
(i) dismiss the grievance,
(ii) grant such redress as he/she believes is appropriate, except that no affirmative relief shall be made to a student unless the student executes the following release

"The complainant hereby waives, releases and covenants not to sue The University of Maryland or its officers, agents or employees with respect to any matters which were or might have been alleged as a grievance filed under the Undergraduate Student Grievance Procedure in the instant case, subject to performance by The University of Maryland, its officers, agents and employees, of the promises contained in a final decision under this Procedure."
(iii) reconvene the campus hearing board to rehear the grievance in part or whole and/or to receive new evidence,
(iv) convene a new campus hearing board to rehear the case in its entirety.

k The Chancellor shall inform all parties of his decision in writing, and the grievance shall thereafter be concluded. The decision of the Chancellor shall be final and binding, and not subject to appeal or review

VII. Composition of Screening and Hearing Boards

The following procedures shall govern the selection, composition and establishment of the college screening boards, and the college and campus hearing boards. The procedures are directive only, and for the guidance and benefit of the deans and Chancellor. The selection, composition and establishment of a board is not subject to challenge by a party as part of this grievance procedure or any other grievance/review procedure in the University; except that at the start of a hearing, a party may challenge for good cause a member(s) of the college or campus hearing board before whom the party is appearing. The chair of the hearing board shall consider the challenge and may replace such member(s) if in his/her discretion it is believed such action is necessary to achieve an impartial hearing and decision. A challenge of the chair shall be decided in the discretion of the most senior of the other faculty members on the board. Decisions with respect to a challenge shall be final and not subject to further review or appeal.

A. **College Screening Boards for Academic Grievances**
1. *Membership of Screening Boards*
a Prior to the beginning of each academic year, the college council of each college shall choose at least fifteen (15) faculty members and fifteen (15) students to be eligible to serve on boards considering academic grievances from that college. Concurrently, it shall choose three (3) other faculty members to be eligible to serve on boards considering academic grievances for the Administrative Dean for Undergraduate Studies. The names shall be forwarded to the Administrative Dean.
b. Prior to the beginning of each academic year, the Administrative Council of the Administrative Dean for Undergraduate Studies shall choose at least fifteen (15) students to be eligible to serve on a screening board to review grievances arising within academic units under the administration of the Administrative Dean for Undergraduate Studies. These names shall be forwarded to the Administrative Dean.
2. *Establishment of Screening Boards*
a. Upon receipt of the names of the designated faculty and students, the dean shall appoint a five-member college screening board which shall consist of three (3) faculty members and two (2) students, and each shall serve on the college screening board for the academic year or until a new board is appointed by the dean, whichever occurs later. The dean shall also designate two (2) alternative faculty members and two (2) alternative students from the names presented by the college council to serve on the college screening board should a vacancy occur. The dean shall designate one of the faculty members to be chair of the college screening board. Members of the college screening board shall not serve on a college hearing board during the same year, except that alternative members may serve on a hearing board other than one considering a case in which the member had previously been involved in the screening process. A member of the college screening board shall not review a grievance arising out of his/her own department or program; in such instance, an alternative member shall serve in his/her place.
b. Upon receipt of the names of the faculty members designated by each college council and the students designated by the administrative council, the Administrative Dean for Undergraduate Studies shall appoint a five-member screening board to review grievances arising within the academic units under his/her administration. This screening board shall thereafter be established and composed in accordance with the procedures set forth in subparagraph A.2.a. of the section, for college screening boards.

B. **College Hearing Boards for Academic Grievances**
For each grievance referred by a college screening board, the dean shall appoint a five-member college hearing board. The college hearing board shall be composed of three (3) faculty members and two (2) students selected by the dean from among those names previously designated by the college council and not appointed to the college screening board. The dean shall designate one (1) faculty member as chair. No faculty member or student shall be appointed to hear a grievance arising out of his/her own department or program. The Administrative Dean for Undergraduate Studies shall appoint in the same manner, a hearing board to hear each grievance referred by the screening board reviewing grievances arising from the academic units under his administration. The members of the hearing board shall be selected from among those names previously forwarded to the Administrative Dean by the college councils and from those who had not been appointed to the screening board.

C. **Campus Hearing Board for Academic Grievances**
For each case referred by a college screening board to the Chancellor for a hearing, the Chancellor shall appoint a five-member campus hearing board. The campus hearing board shall be composed of three (3) faculty members and two (2) students selected by the Chancellor from among those names designated by the college councils and remaining after the establishment of screening boards. The Chancellor shall designate one faculty member as chair. No faculty member or student shall be appointed to hear a grievance arising out of his/her own college or administrative unit.

VIII. Definitions

A. **"Days"**
"Days" or "day" refer to days of the academic calendar, not including Saturdays, or Sundays.

B. **"Party"**
"Party" or "parties" refer to the student and the individual faculty member or head of the academic unit against whom a grievance is made.

Appendix H: Procedures for Review of Alleged Arbitrary and Capricious Grading

Approved by Board of Regents: March 12, 1982

Purpose

1 The following procedures are designed to provide a means for undergraduate students to seek review of final course grades alleged to be arbitrary and capricious. Before filing a formal appeal, students are urged to resolve grievances informally with the instructor and/or the administrator of the academic unit offering the course. Students who file a written appeal under the following procedures shall be expected to abide by the final disposition of the appeal, as provided in part seven, and shall be precluded from seeking review of the matter under any other procedure within the University.

Definitions

2. When used in these procedures
(a) the term "arbitrary and capricious" grading means: i) the assignment of a course grade to a student on some basis other than performance in the course, or ii) the assignment of a course grade to a student by resorting to unreasonable standards different from those which were applied to other students in that course, or iii) the assignment of a course grade by a substantial, unreasonable and unannounced departure from the instructor's previously articulated standards.
(b) the words "Day" or "Days" refer to working days at the University, excluding Saturdays, Sundays and University holidays.
(c) the word "administrator" is defined as the administrative head of the academic unit offering the course.

Procedures

3 A student who believes his/her final grade in a course is improper and the result of arbitrary and capricious grading should first confer promptly with the instructor of the course. If the instructor has left the University or is on approved academic leave or cannot be reached by the student after a reasonable effort, the student shall consult with the

administrator. If the student and the instructor or administrator are unable to arrive at a mutually agreeable solution, the student may file an appeal within twenty days after the first day of instruction of the next semester (excluding summer terms) to a standing committee consisting of three tenured faculty members of the academic unit offering the course. If the instructor of the course is a member of the committee, that instructor shall be disqualified and replaced by a tenured faculty member selected by the administrator.

4. The student shall file an appeal by submitting to the committee a written statement detailing the basis for the allegation that a grade was improper and the result of arbitrary and capricious grading, and presenting relevant evidence. The appeal shall be dismissed if: i) the student has submitted the same, or substantially the same, complaint to any other formal grievance procedure; ii) the allegations, even if true, would not constitute arbitrary and capricious grading; iii) the appeal was not timely; or iv) the student has not conferred with the instructor or with the instructor's immediate administrative supervisor, in accordance with part three of these procedures.
5. If the appeal is not dismissed, the committee shall submit a copy of the student's written statement to the instructor with a request for a prompt written reply. If it then appears that the dispute may be resolved without recourse to the procedures specified in part six, the committee will attempt to arrange a mutually agreeable solution.
6. If a mutually agreeable solution is not achieved, the committee shall proceed to hold an informal, nonadversarial fact-finding meeting concerning the allegations. Both the student and the instructor shall be entitled to be present throughout this meeting and to present any relevant evidence, except that the student shall not be present during the discussion of any other student. Neither the student nor the faculty member shall be accompanied by an advocate or representative. The meeting shall not be open to the public.
7. The committee shall deliberate privately at the close of the fact-finding meeting. If a majority of the committee finds the allegation supported by clear and convincing evidence, the committee shall take any action which they feel would bring about substantial justice, including, but not limited to: i) directing the instructor to grade the student's work anew, or ii) directing the instructor to administer a new final examination or paper in the course, or iii) directing the cancellation of the student's registration in the course, or iv) directing the award of a grade of "pass" in the course, except that such a remedy should be used only if no other reasonable alternative is available. The committee is not authorized to award a letter grade or to reprimand or otherwise take disciplinary action against the instructor. The decision of the committee shall be final and shall be promptly reported in writing to the parties. The administrator of the academic unit shall be responsible for implementing the decision of the committee.

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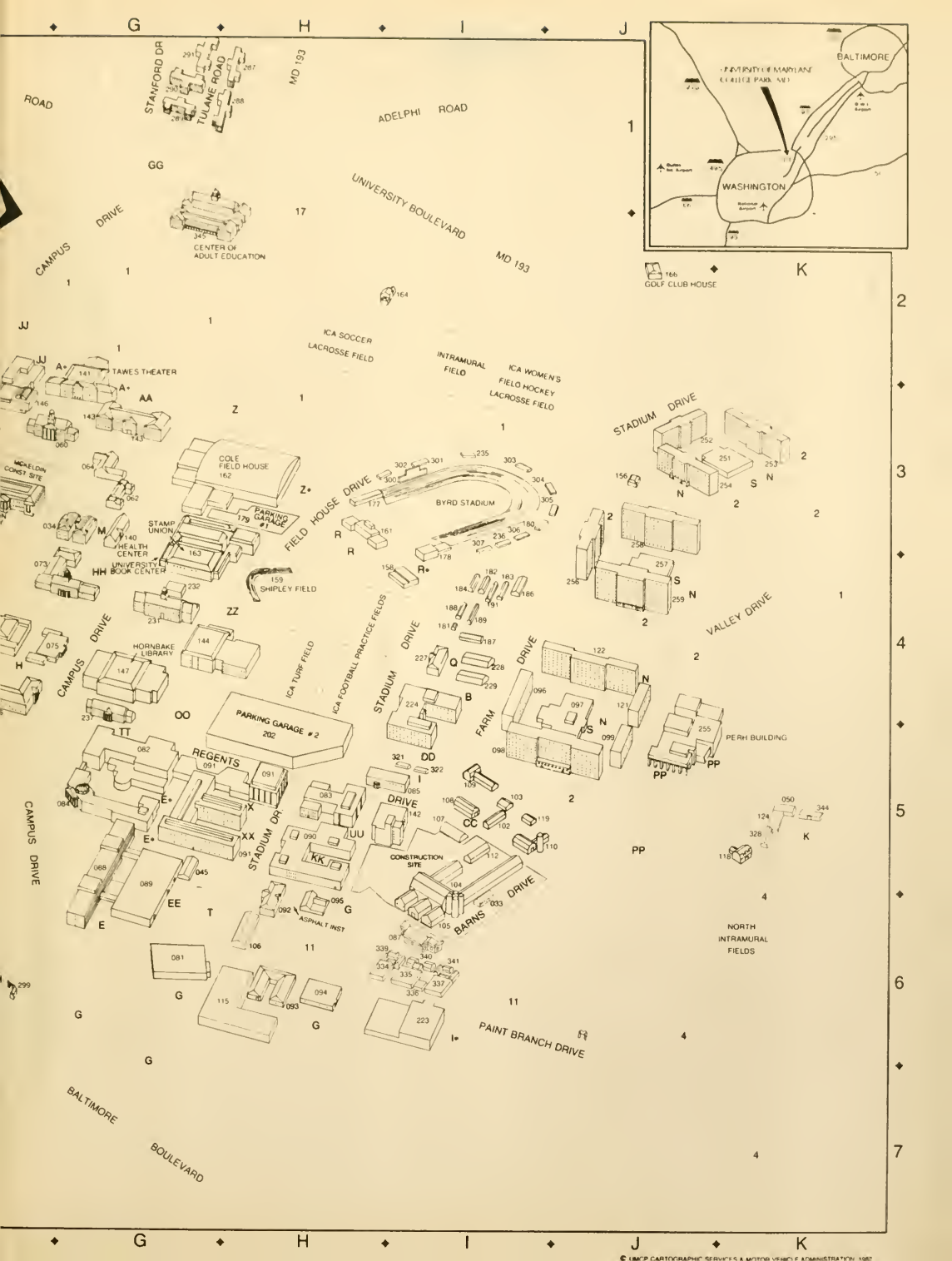
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